BEFORE THE
COPYRIGHT ROYALTY TRIBUNAL
WASHINGTON, D.C.

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In the Matter of 1989 CABLE COPYRIGHT ROYALTY DISTRIBUTION PROCEEDING	DOCKET NO. CRT 91-2-89CD

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(This volume contains pages 1255 through 1470)

Washington, D.C.

Thursday,
September 26, 1991

The above-entitled matter came on for hearing, pursuant to adjournment, in the Offices of the Copyright Royalty Tribunal, in Room 921, 1825 Connecticut Avenue, N.W., Washington, D.C., at 10:00 a.m.

BEFORE:

MARIO F. AGUERO	Chairman
J.C. ARGETSINGER	Commissioner
CINDY DAUB	Commissioner
ROBERT CASSLER	General Counsel

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C O N T E N T S

E X H I B I T S

P-R-O-C-E-E-D-I-N-G-S

10:08 a.m.

Whereupon,

DOCTOR ROBERT CRANDALL

was called as a witness, and having been previously duly sworn, resumed the witness stand and was examined and testified as follows:

CHAIRMAN AGUERO: This morning, we will continue with witness Doctor Robert Crandall and Dennis Lane, of course, Program Suppliers.

But before, on September 20, 1991, the Public Television Claimants filed their Further Response concerning the 1989 Syndex Fund. This filing raised new arguments, particularly with respect to the "pre-clearance protection" to independent producers for public television. The Tribunal would like Program Suppliers and the Music Claimants to file a pleading addressing this new argument.

Mr. Scheiner, Mr. Koenigsberg, when can you get this pleading to us? Where is Fred, Mr. Koenigsberg?

MR. FABER: Fred's not here today.

CHAIRMAN AGUERO: Well, then --

MR. GARRETT: Does he have an excuse?

CHAIRMAN AGUERO: Arthur, what do you

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CHAIRMAN AGUERO: Well, then --

MAN: Does he have an excuse?

CHAIRMAN AGUERO: Arthur, what do you

think would be --

MR. SCHEINER: Well, I want to consult with Dennis.

CHAIRMAN AGUERO: Yes. You have next Wednesday the other one pending with the Sports claimant and how many more days do you wish to have? Next Friday?

COMMISSIONER ARGETSINGER: Music is not so busy at the moment.

CHAIRMAN AGUERO: They can have it tomorrow?

MR. LANE: I doubt tomorrow. How about the seventh?

CHAIRMAN AGUERO: What?

MR. LANE: The seventh?

CHAIRMAN AGUERO: This Friday?

MR. LANE: It's a week from Monday.

CHAIRMAN AGUERO: Excellent, on the seventh.

MR. GARRETT: That's a long time.

CHAIRMAN AGUERO: What?

MR. GARRETT: When does PBS --

MR. LANE: We have one on Wednesday and this is -- you know, we have all the Joint Sports --

CHAIRMAN AGUERO: You have Joint Sports

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MAN: When does PBS --

MR. LANE: We have one on Wednesday and this is -- you know, we have all the Joint Sports --

CHAIRMAN AGUERO: You have Joint Sports

what day? On the--

MR. LANE: Next Wednesday.

CHAIRMAN AGUERO: What day is Wednesday?

MR. LANE: The second.

CHAIRMAN AGUERO: The second.

MR. LANE: Yes.

CHAIRMAN AGUERO: The second.

MR. GARRETT: Would you like me to do the cross for you?

CHAIRMAN AGUERO: How do you like this?

COMMISSIONER DAUB: October 2nd.

COMMISSIONER ARGETSINGER: I don't like it, but we'll take it.

CHAIRMAN AGUERO: You don't like it?

COMMISSIONER ARGETSINGER: No, but we'll take it.

CHAIRMAN AGUERO: He doesn't like it, but he will take it. Commissioner --

MR. LANE: They're not on, Commissioner Argetsinger, until the end of the month, so --

COMMISSIONER ARGETSINGER: Well, I know that but -- I said I'll take it, so let's not --

CHAIRMAN AGUERO: October seventh --

COMMISSIONER ARGETSINGER: Once you've won, don't argue the point or I'll change my mind.

CHAIRMAN AGUERO: October seventh before--

MR. LANE: I don't want you to hold it against me.

CHAIRMAN AGUERO: October seventh before 4:00.

MR. LANE: Don't worry. I'll be out of town --

CHAIRMAN AGUERO: Okay. Thank you very much.

Mr. Lane, cross examination.

MR. LANE: Thank you. Thank you.

CROSS EXAMINATION

BY MR. LANE:

Q Mr. Crandall, when were you retained by the Joint Sports Claimants to testify in this proceeding?

A Sometime earlier this year. I don't recall the exact date. It was in the spring.

Q Was it after the Bortz Study had been completed?

A After the Bortz Study submitted in this proceeding?

Q Yes.

A I believe there was -- I don't know if there was a draft of it available at that time. I

think there was, but I don't believe that a final -- I think the final date on the Bortz Study is something in August, isn't it?

Q But after -- I'm sorry. Let me just -- after the survey had been conducted, is that correct?

A I -- oh, yes, I believe so.

Q So you had no role in formulating the survey, did you?

A No. None at all.

Q Now, I'd like you to turn to page four of your testimony, please?

And at the bottom of the page, it begins, "criticisms of the BBC Study," I'll be referring to that.

A Yes.

Q Do you have that in mind?

A Yes.

Q Now, do you disagree that the Joint Sports Claimant Survey, or the Bortz Survey measures total value?

A I think it is reasonable to assert that the '83 study did, and that the '89 study does.

Q And do you agree that appropriate measure of marketplace value is the marginal contribution of each program?

A Yes, the marginal -- the marketplace value of that program. The words "marketplace value" as I understand them to have been used in this proceeding, refer to those marginal values times the number of programs.

Q But you agree that the appropriate measure of market value is the marginal contribution of each program, and that was the position that Doctor Besen took in the 1983 proceeding?

A In the market in which programs are being offered discreetly, one-at-a-time, yes.

Q And going down further, do you agree that the 1983 study did not -- Bortz Study, did not account for market supply effects?

A I think that's correct, yes.

Q And those were the points that -- all the points that Doctor Besen raised as -- as you've related them on pages four and five of your testimony, correct?

A Those are the major points that Doctor Besen raised, yes --

Q Right.

A -- and the ones I addressed in my testimony.

Q Now, could we turn to page six of your

testimony, please?

And the Summary of Conclusions, we'll just start there to give you an idea where we are. Do you have that in mind?

A Yes.

Q Is total value the same as marketplace value?

A In a market in which programs are being sold one-at-a-time, no.

Q Now, I want to see if I understand the points that you're trying to make here. What you're trying to -- to do is to determine whether the marketplace value of two types of program stay in the same relative position. Is that correct?

A Yes, I am trying to assess whether the relative values determined this way by total value, are -- reflect a relative marketplace values for the categories in question, yes.

Q But it isn't so much that as you want to make -- you're trying to say that Movies, Sports, and Syndicated Series all stay in the same position whether you measure total value or marketplace value, isn't that --

A I am not trying to say that. I am demonstrating under what conditions that would be

true, yes.

Q Okay. And the conditions you have, at least in my view, three -- a three-part analysis for this, is that correct?

A I don't know about the three-part -- you would have to describe the three parts of the analysis before I could agree with you.

Q Okay. First, is that total value is related to marketplace value by elasticity.

A Right.

Q Second, if the elasticity is the same, relative marketplace value is equal to relative total value.

A Right.

Q And third, there's no evidence to suggest that elasticity differs among the program types.

A No evidence that I'm aware of, yes.

Q And those -- that's your three-part analysis, as I term it?

A That's part of my analysis, yes.

Q Okay. What other parts of your analysis are there?

A Well, I pointed out that if the alternative market is one in which the cable operators are negotiating with the collectives, the groups of

suppliers in each category, then total value is the appropriate measure.

Q Now, in this -- Okay. So that's a second -- in the -- in the first approach that you've taken with what I've called the three-part test, does that assume that a cable operator could buy discreet programs at discreet prices and stop buying programs whenever the operator wishes?

A Well, as I mentioned -- and I guess what you're referring to is the first analysis -- the assumption is that the cable operator is buying programs one-at-a-time. So, presumably yes, he has-- he is making a choice on quantity, based upon prices.

Q Is that the assumption that you believe is implicit in Question 4 -- whoops.

A I'm sorry.

Q Do you have water all over the place?

A That's all right.

Q Do you need a towel, I guess is the real question?

A Go ahead.

Q I know you did that just to confuse me, but it won't work.

A Go ahead. I -- I can suffer through.

Q Now, my question was, did you assume that

the answer to Question 4 -- that a cable operator when he was answering Question 4 in the Bortz Survey -- do you know what Question 4 is?

A Yes.

Q When he was answering, was assuming that the operator could buy discreet programs, one program at-a-time, as you put it, I think?

A Well, what I -- what I assume the appropriate exercise here is to ascertain the value of the programs which the operator actually carried on distant signals. So therefore, I believe that the operator was asked to respond in terms of the programs he actually carries.

However, the marketplace analogy is one in which he buys them one-at-a-time. One of the complicating factors in all of this is that in a market in which the operator is offered programs one-at-a-time of various types, the equilibrium may be different from that which is obtained through the Compulsory Copyright.

Q So it's your view that the -- I'm a little confused. Could you tell me what you thought the operator had in mind when answering Question 4?

A I'm not sure I can tell you what the operator had in mind. I can tell you what I

understand the question to be, and the question is asking him to place -- to determine the relative values and the relative amounts he would spend out of his program budget on the programs which were actually carried, not an array of programs which might be purchased if programs are available one-at-a-time in the market.

Q In formulating the examples that you've shown on Figure 1 and Figure 2 in your testimony, those assume, do they not, that the operator could buy programs one-at-a-time?

A No, they don't, necessarily. For instance, this one here simply says this is the marginal value of the first program. This is the marginal value of the second program. This is the marginal value of the third program. It's possible to use this diagram to show how much he would pay for all three, given an all-or-nothing choice, or how much he would -- how many he would buy at a price of $300, how many he would buy at a price of $200, how many he would buy at a price of $100. So, they don't necessarily assume that.

They're there for illustrative purposes to show the relationship between marketplace and total value.

Q But if it is an all-or-nothing basis, my understanding of your testimony yesterday was that total value equals marginal value equals marketplace value in that situation. Is that correct?

A In the sense -- if I'm defining marginal value to be what is the next increment allowed him worth, and he's allowed a choice between zero and three, in this case, or however many programs he actually bought, yes. Then marginal value and total value become the same.

Q And is -- is it the assumption of Figure 1 that marginal value and total value are the same?

A If -- if we are talking about the ability of the individual to -- to the individual buyer to buy programs one-at-a-time, then the marginal value of the third program is $100 here. If we're asking "what is the marginal value of having those three programs relative to zero?" then the marginal value of those three programs is $300 plus $200 plus $100, $600.

Q What if the operator said $300 for the first program. And went to the marketplace and the supplier said, "I'm sorry. The price is $400." What would happen in that circumstance?

A I'm sorry. If the price offered by the Program Supplier were -- were -- were $400, is that

your hypothesis?

Q Yes, yes.

A And it was only worth $300? Then the cable operator would not buy that first hour of programming by this assumption.

CHAIRMAN AGUERO: And if he decided to buy the program for $400, what happens?

THE WITNESS: Well, then there's something wrong with the assumption. I mean, it's possible that the -- that the assumption is wrong, but presumably, if he thinks it's only worth $300 and he buys it for $400, he's not -- he's not behaving very rationally. He's -- he's buying something for -- paying more than it's -- it's actually worth and there would have to be some other contingency value to having that program that we haven't captured here. Therefore, the value would have to be -- $300.

CHAIRMAN AGUERO: Suppose he decides for $400, and decides to cut some other program -- to buy some other programs at a less price?

THE WITNESS: Well, that wouldn't be -- again, that wouldn't be a rational choice if the value to him, of that program, is only $300. It just -- I mean, it's possible that -- that he -- he makes mistakes but --

CHAIRMAN AGUERO: When -- in this business sometimes people overpay programs to obtain the ratings or sponsors or -- or something else, money.

THE WITNESS: Well, it's possible. It's possible. It's also possible that they, in fact, view a program to be worth more than it turns out to be worth. I think the biggest risk in this market is that it is -- that the value of these entertainment vehicles is -- is very uncertain. This isn't -- this assumes that -- this is his estimate of what the values are.

He may -- it may turn out that this program is worthless, and then if he paid $300 or $400, or whatever he paid for it, it was too much. But the assumption here is that he makes a judgment as to what it's worth and then decides how many to buy.

COMMISSIONER ARGETSINGER: And of course, this is just for illustrative purposes, this is the average, reasonable -- I suppose you have all kinds of variations. People who are not good businessmen. People who are terrific businessmen. Some getting-- so this just illustrates what -- what the market value would be in a normal situation.

THE WITNESS: Correct. There's a long

literature in economics about whether businessmen behave rationally, and it's quite clear that some may not. But there is -- there's also a capital market out there and those who do not are those who go out of business over time.

COMMISSIONER ARGETSINGER: In the law is the only place you have the reasonable man.

THE WITNESS: Well, hopefully, the market also separates out the reasonable and the rational from the irrational.

BY MR. LANE:

Q Just so there's no confusion, Figure 1 and Figure 2 are totally hypothetical, are they not?

A Oh, of course.

Q You're not pretending that $300 is the-- is the price for any Sports program at all?

A Absolutely. These prices would obviously vary by -- by size of market.

Q And it's -- you're just trying to illustrate a point with the numbers more than say, "this program is worth X and the other program is worth Y."

A Absolutely, yes.

Q Isn't that correct?

A Yes.

Q Now, in turning, if you would, please, to page -- to Figure 2 of your testimony?

A Yes.

Q I just want to sort of go over some points with you. As I understand it, and I believe that you and Doctor Besen agree, that the total value is equal to the sum of the marginal values. Is that correct?

A Yes.

Q And so, the total value is really the entirety of the shaded area --

A The two shaded areas, yes.

Q The two -- yes, I should have said it that way. Touche'.

I like to think of it -- it's the total of the rectangle and the triangle, correct?

A Correct, correct.

Q And that, isn't it possible to think of this in geometric terms, as well as economic terms, I mean, just in terms of looking at the relationships here?

A Well, this is the use of geometry to explain economic terms. We could have done it with-- with mathematics but --

Q Right.

A -- it might have --

Q But the way you presented it, we could also talk about this in triangles and rectangles?

A Yes.

Q And still come to the same result?

A Yes, yes, yes. I wish to caution you, however, that I use a linear demand curve --

Q Right.

A -- just for purposes of illustration and that --

Q Just to make it simple for all of us --

A That's right. That allows you to use the word triangle, yes.

Q Right. And I'm accepting this as a hypothetical.

A Right.

Q We know the curve could be --

A Sure.

Q -- I mean, the line could be a curve. It could be a whole bunch of different ways, but --

A Yes.

Q Just because of the way you've drawn it, we can do it geometrically.

A Correct.

Q And we would come to the same result. In other words, if we -- if we went to geometry and we

said, "we know how to measure a rectangle, the width times the length, which is 100 times three. We would get $300."

A Right.

Q And that would be the -- that would be what, the marketplace value, correct?

A Right. If you're selling them one-at-a-time, yes.

Q Yes. You're selling them one-at-a-time. And then a triangle is just half of a rectangle, so we know we have from $100 to $300. So, we have $200 times three is $600 --

A Right.

Q -- and half of that is $300. So --

A Right.

Q -- in your relationship, the total value, as you state in your testimony, is $600, correct?

A Yes, on this --

Q And then marketplace value is $300.

A Right.

Q And so, that's a relationship of two-to-one, correct?

A Right.

Q And if we looked -- if we did the mathematics here, this would also be two-to-one?

A Yes.

Q And once you had drawn this one, it was easy -- it followed how you had to draw these?

A It seemed to be easy, yes.

Q I mean -- I'm not saying it had to be easy, but it seemed to follow, correct?

A Right. Yes, it followed.

Q And in fact, when you looked at --

MS. MADIGAN: Excuse me a second. You two are talking over each other.

MR. LANE: I'm sorry.

MS. MADIGAN: I think the record will be a little unclear.

MR. LANE: I'm sorry.

Was there something else you wanted to say?

THE WITNESS: No. I was just saying that it was -- it was -- the intention was to replicate the two-to-one ratio throughout, to show a situation in which total values were in the same relationship to one another as marketplace value.

BY MR. LANE:

Q Right. So that, since this one was a $300 to $100, when you -- when you looked at this one yesterday and you saw it was only 20 to 10, you knew

immediately it was incorrectly drawn. And you just moved it up to 30, correct?

A Correct.

Q Okay. Now --

A Excuse me. Could I add one thing?

Q Sure.

A I had in my written testimony and referred to it correctly. I just -- somehow the thing had been drawn incorrectly.

Q Right. Now, I'd like to mark as Exhibit 1 -- or I'm sorry.

What am I up to, six? I'm up to 6X.

Bob knows this. Do you remember?

MR. GARRETT: I'm not going to tell you.

MR. LANE: Thank you.

I'll put it in as 6X and then Bob can worry about the record.

MR. OLSON: I believe it's 5.

MR. LANE: Is it 5?

MR. OLSON: Yes.

MR. LANE: Oh, okay.

We know Tom has to take care of this because we never know what sequence they will be, right?

So, I'd like to introduce as Exhibit 5X,

a one-page document which has an XY chart on it and a point.

(Whereupon, the document was marked as PS Exhibit 5X for identification.)

MR. LANE: I thought you all had marked this, so you could fill it in yourself.

Now, Mr. Crandall, when we draw a line, we have to start with a point, correct?

THE WITNESS: I suppose, yes.

BY MR. LANE:

Q Okay. And -- and you can see -- well, if you're drawing a demand curve, you have to start with some point, do you not?

A Yes, yes.

Q Yes. And what would be the possibilities of points that you could start with if you were starting with drawing a demand curve?

A Well, for a hypothetical demand curve, any -- any point. For -- for -- if we know what the demand curve should be, I suppose any point along it.

Q What I'm referring to, quite obviously, this -- it matches the top side of your example in Figure 1, does it not?

It doesn't quite because I couldn't

understand why you had the $300 right on the zero line. I couldn't -- so I moved it to a -- under the one line.

A Well, this is the problem with -- with continuous and discontinuous lines. Actually, the top -- the top part of Figure 2 is not precisely the same, obviously, as Figure 1.

Q The top part of --

A Of Figure 2 is not the same as Figure 1.

Q Wait a minute. There's -- you -- let's --let's -- I just want to make this clear for the record.

I'm referring to the top graph in Figure 2 of your testimony, which the top left side, the point is at $300, is it not?

A Yes.

Q And this point in Exhibit 5X is an attempt -- my attempt to draw the same point that you have, okay?

A Okay, right, okay.

Q Will you accept that?

A Yes, it's similar. Yes --

Q It's just a hypothetical --

A -- it's similar. Yes, okay, it's similar, sure, sure.

MS. MADIGAN: Would you let the witness finish his answer?

THE WITNESS: It's similar, yes.

BY MR. LANE:

Q Okay. Now, in -- what does this -- what does this point represent in your testimony?

A It's -- if you're telling me that that point represents the quantity that the cable operator will buy, namely one hour at a $300 price, I guess that's the beginning point, or first point, of the demand curve.

Q Where in the Bortz Survey, if at all, can we get this point? Where would we look?

A We can not get it, that point, from the Bortz Survey.

Q Why is that?

A Because the Bortz Survey does not elicit a demand curve for programming at different prices.

Q Now, from this point, it's clear, is it not, that we could draw any number of demand curves?

A Well, certainly.

Q We could just --

A Certainly.

Q -- draw all around. How would we fix that demand curve at one particular line, as you have in

your example on Figure 2?

A Fix it for what purpose?

Q Of showing a demand curve where we just have a point.

A You can draw it with any slope you wish from that point, and in a downward sloping direction from left to right.

Q If --

A If it's just for illustrative purposes.

Q Okay. If -- if it isn't just for illustrative purposes, but you're attempting to draw a demand curve representing, for example, cable operators' interest in programs, what would be the two points that you would need to draw that curve?

A Well, you would need to know something about that demand relationship. You just couldn't start drawing. If you really thought you were drawing the demand relationship for a particular type of programming, for a particular cable operator, in a particular market, I suppose you would need to estimate that somehow.

Q Well --

A If you wanted to do it -- if you wanted to do it with certainty and make it apply to a specific, real world situation.

Q I -- I -- I understand what you're saying. What -- you and I are maybe going at slightly different points. I'm not interested in the exact dollars. I'm just interested in the term of what you would be looking for.

A The term of what I would be looking for?

Q Yes.

A Well, an important -- and I guess I'm not sure what you're asking me for. What -- one important criterion -- and assuming you had the first point correctly and that's a factual question -- is what the elasticity of demand is. What the price sensitivity of demand is. I draw it less steeply if I think demand is quite price sensitive, price elastic --

COMMISSIONER ARGETSINGER: For example, if you knew from hard evidence, that the first hour of Sports that was brought in distant carriage, that the price paid would be $300 and the cable operator needed that to retain his audience -- a hypothetical, but he needed to have that hour. And then, if you could determine that if he had another hour of Sports, he could double his audience, I suppose at that point, the line would be horizontal, would it not?

THE WITNESS: If the doubled audiences-- if that additional audience is equal to the same

amount as the same audiences. There's also the question of whether the additional audiences or additional programming is worth that much in the marketplace. If this is just the audience -- value-- marketplace.

COMMISSIONER ARGETSINGER: Oh, so then, it's the supply also?

THE WITNESS: Well, it isn't just the supply. Even if he doubles his audience on Sports, he may not double the value of that -- having the first hour may induce me to subscribe to cable. Having the second hour may double the amount I watch it, but may not increase the amount -- the amount I'm willing to pay for cable.

COMMISSIONER ARGETSINGER: Yes, but if you double the audience, if you double the number of subscribers.

THE WITNESS: Well, the audience to subscribers are two quite --

COMMISSIONER ARGETSINGER: Well, I mean--

THE WITNESS: -- different -- yes, if you doubled the number of subscribers, yes.

COMMISSIONER ARGETSINGER: Yes, that was my hypothetical. If you double the number of subscribers --

THE WITNESS: Right, yes. Right, right.

COMMISSIONER ARGETSINGER: -- then your line is horizontal.

THE WITNESS: Correct.

COMMISSIONER ARGETSINGER: And then, at some point, I assume with everything in nature, it begins to drop off?

THE WITNESS: One would expect that, yes.

CHAIRMAN AGUERO: Mr. Crandall, did you have Roseanne Barr at 8:00 at night time and she has, let's say, a 28 point rating, followed by Bill Cosby. Bill Cosby have a 32 point rating, more than Roseanne Barr at 9:00 -- from 9:00 to 10:00? I mean, the audience increased instead of decreased.

THE WITNESS: Oh, yes. But this is not a temporal matter here. Yes, this is not a temporal matter. The point is that people are willing to pay more if their commercial broadcaster is offering advertising for the higher rated program. It's not necessarily clear that cable operators who don't intersperse advertising in that program would be willing to pay more.

CHAIRMAN AGUERO: Well communication to the cable operator have -- and he pays $300 because he's the -- it's the program that he wants to have.

Then if the other program with less money can have more audience than the first program?

THE WITNESS: It's possible, yes, yes. And I give an example --

CHAIRMAN AGUERO: For less money?

THE WITNESS: Yes. I give an example in my -- in my testimony, and I think Doctor Bortz talked about other examples.

The fact is that by having a fairly lowly rated service which attracts another increment of viewers, another, say, 1,000 subscribers -- not viewers, subscribers -- one, a cable operator might find that program far more valuable than something that just adds to the number of people who watch the channels that are already on his system, and the subscribers who already subscribe to his system, watch.

So, it's possible that low frequency, low viewership programs, could be worth more to cable operators than high frequency, high viewership programs if they attract people who otherwise wouldn't subscribe to cable.

COMMISSIONER ARGETSINGER: Well, to get back to how you draw the line, I suppose you would need to know how many subscribers would be attracted

by each condition --

THE WITNESS: That's -- yes, that's part of "how much would they be willing to pay?" Because it may -- may be offered as a premium offering. So, it could be how much they're willing to pay and how many additional subscribers --

BY MR. LANE:

Q You -- the last time you and I were talking -- indicated that you would have to know the elasticity, correct, if you wanted to draw the line?

A Right, right, right.

Q And the elasticity on this is nothing more -- on Figure 2 -- is nothing more than the downward sloping line that appears on the page, is it?

A The elasticity is the proportionate rate at which quantity rises with a proportionate change in pricing.

Q That was going to be my next question.

A Right.

Q So you'd have to know quantity -- how much is going to be sold at each price, do you not?

A Well, you start -- if you know one point and you know the elasticity, and if the elasticity is the same throughout, you could draw the curve. It wouldn't be that curve, but it would be a different

curve. But otherwise, you need to know -- if you know that the demand relationship is linear, you obviously, only need to know two points.

Q Right. And could you tell me in the Bortz Survey, where you would get those two points?

A The Bortz Survey does not allow you to draw the demand curves, the demand functions, for each type of programming. That question -- that -- that information does not come out of the Bortz Survey.

Q Okay. Does one of the two points come out of the survey?

A No. The -- I'm not sure that -- no. You could not -- you could not fix any particular point. What you can fix is the quantity because we know -- the question -- the question that is asked is supposed to elicit from him the value of the quantity which he actually carried last year, or in the -- in the year 1989.

Q So, if elasticity is price and quantity, we would at least know the quantity, correct?

A You will know the quantity, yes.

Q But we would still have to know the price. Is that correct?

A Know the price in order to do what?

Q To determine the elasticity.

A Well, we could have estimates of the elasticity from other -- some other source, but you would have to know a point -- at least a point on the demand curve, and the elasticity in order to draw the curve, which was the exercise we were just going through, yes.

Q And could you draw that point on the curve without knowing what the price is?

A No. No, you could not. It's a -- those are coordinates in price, quantity space. You need to know both.

Q Now, as I understand your testimony, that as long as that curve is the same -- that is, as long as the elasticity is the same -- across different program types, that the relationship between total value and marketplace value will be the same. Is that accurate?

A The relative relationship --

Q The relative --

A -- across program categories, yes.

Q Right. In other words, that -- just, again, referring to Figure 2, that whatever the value -- I'm sorry. Whatever the relationship between $330, which is the total value, as long as this curve from the $300 down to the $100, and the 30 down to the 10

is the same relationship, that will give you the 30-- the $300 to 30 will give you the same relationship as, not surprisingly, $100 to 10, correct?

A Right, right.

Q And that's what you're attempting to -- that's -- that's the basis for your saying that the marketplace value is proportionate, in effect, to the total value in these cases?

A Yes, yes.

Q Now, if -- if I change the price on this -- let me just -- over here. If I changed the price from $100 to $200 in the Sports, what -- could you tell me what the total value is in that situation?

A Well, we could -- we could calculate it.

Q Well, it would be $200 times two, let's just make this easy for ourselves --

A If that's where -- cross, yes.

Q Okay. Just to make it easy, why don't we just say that?

A All right. Okay.

Q It would be $200 times two, correct?

A Yes. The way that's drawn, it's not quite that but let's say --

Q All right. Okay, let's just make it easy.

A -- yes, yes, right.

Q So that would be $400. That would be the marketplace value, correct?

A Right, if it's two times $200, right.

Q And what would be the total value in that situation?

A Well, the total value would be -- would be that $400 plus whatever is above that demand curve.

Q And we would know that would be --

A Above the $200 price, and it would be this triangle here.

Q Right. And we know that that would be, in effect, $100 times two, divided by half. Is that right?

A Well, this isn't quite correct but -- because of the way the thing is drawn.

Q Right. But I mean, to make it simple on ourselves --

A Yes, yes, yes, yes. I think -- I -- go ahead. I'm sorry.

Q So that the total value would then be $400 plus $100 in that example, is that correct?

A If -- that's correct, if the -- if the geometry comes out that way. If we force it, yes.

Q Well, let me just introduce into the record as Exhibit -- Program Supplier 6X.

You're going to love this one, John. So--

An exhibit where I have, as you put it, forced it.

(Whereupon, the document was marked as PS Exhibit 6X for identification.)

BY MR. LANE:

Q But in hypotheticals, sometimes if we want to make it simple, it's easier to force it, isn't it, than to try to fight whether the $200 --

A Well, let's --

Q -- is really at 1.78932, correct?

A Well, it may be -- the result may be incorrect, but I think we can --

Q But you can --

A I see where you're going with this.

Q You can live with drawing it this way.

A Right, right.

Q And in this drawing, I have put the $300 line, as you can see, Mr. Crandall, right at one.

A Right.

Q The $200 line right at the two, correct?

A Sure, sure.

Q Now, in this example, we've kept the curve -- I mean, excuse me, the elasticity the same, have

we not?

A No.

Q No? Why is that?

A Because a straight line demand curve does not have constant elasticity. So, as you move from this point to this point, you've moved to a -- to a more elastic curve. And not surprising, that you will have a different ratio of total value to marketplace value.

Q So you're saying that this does not -- this is not the same elasticity as the --

A No, sir. Yes, that's correct.

Q -- as the prior example?

A May I explain for a second on that?

Q Be my guest.

A I -- I drew these three curves as having the same elasticity at this point here. And my conclusion follows from the identity of the elasticities at these three points.

I could have drawn a constant elasticity curve, but then it would have made the geometry a little more complicated, and I did not do that. As you move up this direction, up this curve, the elasticity becomes higher and higher. And as a result, the ratio of total value to marketplace value

-- as you can see from Mr. Lane's drawing, or you can just see by moving up this direction -- the ratio of total value to marketplace value falls as you do that. So, that violates my assumption of equal elasticities by doing that.

Q Okay. So, you're saying that only if we follow your hypothetical exactly, can we get the relationship between total value and marketplace value?

A It is important that the elasticities be the same, yes. And if the elasticities are the same, then marketplace -- then total value and marketplace value would give you the same results.

Q But if the price changes, that changes the elasticity, which changes the relationship. Is that correct?

A Not necessarily. If the -- if the real world demand is one of constant elasticity -- and it may be -- then that is not the case. It is just on a linear demand curve. There's no reason why -- why demand curves have to be -- have to be linear.

Q Tell me the difference then, between constant elasticity and linear, just so I can understand.

A Well, the constant elasticity in a demand

curve would have a shape something like this, it would be curve a linear. This one is linear, a straight line, and it is -- therefore, it's elasticity varies.

Q Okay. Does your -- does the relationship between total value and marginal value that you've shown on Figure 2, depend on this being a linear elasticity?

A Oh, no. It does not. It just depends-- it depends on the -- the elasticity at the equilibrium point or at the transaction point, or at the point being studied.

If it -- if -- if it were constant elasticity, then it wouldn't make any difference which point you chose on the demand curve.

Q What do you mean by it would not make any difference at which point it shows on the demand curve?

A If -- if the -- all these curves were constant elasticity, then the relationship between total value and marginal value would be the same throughout their -- their range.

Q I see. But, on a linear basis that does not apply?

A Because a linear demand curve is not a constant elasticity demand curve, correct, and as you

move along these demand curves then the -- the quality of the elasticities is violated.

Q And by the quality of the elasticity being violated you mean that the relationship between total value and marginal value changes, is that correct?

A I mean that the demand relationships no longer have the same elasticity and therefore, yes, it follows that the relationships among total value are no longer the same as relationships among marketplace value.

Q Now, if the price were zero for a particular program down the curve someplace, what would be the marginal value of that program?

A If the -- if the price were zero and people were free to buy it at a price of zero, presumably they would buy up to the point where the marginal value is zero.

Q Okay. What would be the marketplace value in that --

A At a zero price there are no transactions, so there is no marketplace value.

Q So it would be zero?

A Right.

Q What would be the total value if we assumed that the same linear curve that you --

A Oh, the total value would be the area of that entire triangle down to the X axis.

Q So, it would be a number greater then zero, is that correct?

A Oh, yes.

Q And if we just followed, for example, the top figure in Figure 2 would it be fair to say that it would be more then 600?

A Oh, yes. Yes. Well, wait a minute. I'm sorry. I may have this too close. It looks to me like it's going to be exactly 600 in the top one.

Q Exactly 600?

A Yes. It's going to be 300 -- 300 times 4 divided 2.

Q 600. So, in that situation the difference in price would give you a different relationship between the total value and the marginal value, would it not?

A Oh, yes. And the elasticity would be different with that zero price.

Q The elasticity would always be different depending on where the price is, isn't that correct?

A On a straight line demand curve --

Q Right.

A Not on a constant -- a constant elasticity

demand curve, you see, would never go down to zero.

Q Right. I can only deal with one drawing at a time. If you want a straight line -- if you want to talk about something else, you could have drawn it. I'm not that fast.

But, at least on the example that you've given in your testimony if the price changes, the elasticity changes, correct?

A That is correct.

Q And the relationship between the total value and the marginal value changes, is that correct?

A Yes. Yes.

Q And the relationship between the total value and the marketplace value changes, correct?

A That is correct. But, let -- let me point out that the reason I did that was simply to make the drawing easier. I'm not asserting that the demand curves for -- for cable operators demand for programming are linear.

Q Do you know what the demand curves are for programming by cable operators?

A The only way I could know that is if I'd seen some studies of these things and if I'd seen studies, then we'd have evidence on elasticities. I have not seen such studies. Therefore I don't know

few minutes to --

CHAIRMAN AGUERO: Okay. Five minute recess.

(Whereupon, at 10:55 a.m. off the record for a brief recess until 11:08 a.m.)

CHAIRMAN AGUERO: Mr. Lane?

MR. LANE: Thank you.

BY MR. LANE:

Q Mr. Crandall, the relationship between total value and marginal value being the same for different program types requires that the elasticity of those program types be the same, does it not, under the assumptions you've given us --

A Could you ask that again? I'm sorry, I didn't get the first part.

Q The relationship between the total value and marginal value of different program types is only the same if the elasticity for those program types is the same, is that correct?

A Yes. Generally I think that would be correct. That's right.

Q And if there are different prices for programs will the elasticity be the same or different?

A Depends what that demand relationship looks like. It is possible that elasticities could

be constant over a very wide range. It's possible that -- that you could have a relatively straight line demand curve. But, that would be another question.

Q In the example that you gave on Figure 2 of the three program types, recognizing that this is a hypothetical in all its limitations, nevertheless the marginal price has to be 150 in 10 for this relationship as you've drawn it, does it not?

A No, it doesn't necessarily have to be those prices, but you have to be at points on those demand curves which have the same elasticities.

Q Well, we could have drawn different curves, could we not, with different prices. But, I just want to stick with the three curves that you've drawn.

A We could find points on those curves which have the same elasticity --

Q At different points?

A At different -- different points, yes.

Q But, if the Sports price instead of being 100 were really 200, it's elasticity would change, but not the Movies or the Series, would they?

A If we assume that the others stay at those prices, the others -- the others would not change elasticity and Sports would change, correct.

Q And the relationship then just for Sports under that example in your hypothetical -- the relationship between total value and marginal value would be different for Sports from the relationship for Movies or Series, is that correct?

A That is correct because the elasticities would be different.

Q Right. And so the only way that the relationship between all three is identical is if the elasticity is identical?

A In this particular drawing, yes. It is-- it is possible that you can have demand curves which vary in elasticity tremendously. But, in general it requires for equality of -- of these relationships between total value and marketplace value, it simply requires that the elasticities be the same.

Q And that is the requirement, is it not, for the values given in the Bortz Survey under your analysis to equal or give us some idea of what the relative marketplace value of the different program types?

A I have to be a little careful here. It is possible that demand relationships could take on a variety of different forms. If the elasticities are the same across these program types, then the

relationships of -- of total value ought to be the same as the relationships of marketplace value.

Q And that's what you have posited in your testimony here, is it not?

A That is a conclusion I have reached in my testimony, that if the elasticity is the same that-- that this would be true and that the Bortz Study would -- would be misleading only if one could demonstrate that the elasticities are radically different.

Q Now, Mr. Crandall, you saw the Bortz Study, did you not at some point?

A Yes, I have seen the Bortz Study, yes.

Q Right. And you know, do you not, that there are seven categories?

A I have not -- I have not committed to memory the -- the number of categories, but --

Q But, there are more then -- well, do you have it right there?

A Yes, I do.

Q If you'd just turn -- I'm not sure to what -- if you don't mind my standing here. Well, I was going to look in question four.

A I see. I see.

Q And there are seven categories are there not?

A Yes. Yes.

Q Now, you focused on only three of the seven categories, did you not?

A I didn't focus on any categories. I used three categories just as an illustrative example. I could have drawn seven or 17. It didn't make any difference. It was simply to show a general, theoretical conclusion.

Q And is it your testimony that the relationship that exists that you posit should exist between Sports, Movies and Series also exists between, for example, Sports and Devotional and Religious programming?

A The same conclusion holds. That is, that if these elasticities are the same across seven categories, then the relationship of total value among those seven categories will be the same as the relationship across marketplace value.

Q Do you know whether the elasticity for-- let me rephrase that. Would you expect that the demand for Devotional programming and Religious programming would be the same as it is for Live Professional and College Sports?

A I would certainly not expect the demand to be the same, no.

Q Would you expect the elasticity to be the same?

A I don't know whether it would be more or less.

Q Do you know that in the record in this proceeding if there has been evidence that the Devotional, Religious programmers do not sell their programs, but they give it to the station for a zero price? Do you take that as --

A I -- I'll take that as a given.

Q Thank you. Now, knowing that would that change your answer that the elasticity between Live Professional Sports and Devotional and Religious Programming would be the same?

A I've never concluded that they are same, but it -- that doesn't bear on -- on that issue anyway.

Q All right. Let me ask you, would they not -- let's see, how can I phrase this -- would they differ?

A That -- that -- as I understand your question, I don't believe that information bears at all upon the question of what is the elasticity of demand for cable operators -- cable operators demand for programming in a particular market.

Q And why is that?

COMMISSIONER DAUB: Mr. Lane, I don't mean interrupt. Just to be fair to Devotional claimant groups, I do believe that their counselor has stated that the true stands for the broadcasters system, but not necessarily for the distant signals, is this correct?

MR. LANE: Well, I believe he said that. It would be my position if they give it to the broadcasters, they would give it to the cable systems if it was a free marketplace.

COMMISSIONER DAUB: I just want to repeat that they did testify as such.

COMMISSIONER ARGETSINGER: And of course we never listen to evidence given by counsel.

MR. LANE: Not since somebody became president of a college, right?

THE WITNESS: Mr. Lane, now that you've --you've posited a question and perhaps answered it, let me point out why I think your -- your answer is incorrect.

And your answer is incorrect because a broadcaster's decision on the carriage of programs differs very much from a cable operator's decision. The cable operator is selling subscriptions. The

broadcaster is only selling advertising.

A very low rated program can be worth a lot on cable and very little in broadcasting. So, I don't think you can make that translation from broadcasting to cable so -- in such a facile manner.

CHAIRMAN AGUERO: Don't cable systems sell advertising?

THE WITNESS: They -- they do sell advertising. But, they may well purchase some programs in order to enhance their subscriber base or to obtain premium revenues that are of little value to advertisers because they simply reach too few people.

BY MR. LANE:

Q Well, my real question was, in your professional opinion would the elasticity of Live Professional and College Sports in the sale to cable operators differ from that of Devotional or Religious programming?

A I have no -- no way of knowing whether they would differ very much. I simply don't know.

Q And is it your assumption for purposes of your testimony that they -- they are not different.

A Not at all. My testimony simply shows under what conditions a survey such as the Bortz

Survey might elicit responses that give you an accurate measure of relative marketplace value.

Q Do you think in your professional opinion that the elasticity for Live Professional and College Sports programs in sales to cable operators is the same as that for -- excuse me -- does not differ from that for PBS, Educational or other Public Television?

A I would give you the same answer. I don't have information on that. I don't know.

Q And am I correct in saying that your testimony is just telling the Tribunal "under these conditions total value and marketplace value of different program types would have a relationship?"

A My -- yes. My testimony is telling the Tribunal how to evaluate information on relative total values and how it might translate into useful information for assessing relative marketplace values.

Q Now, on page 13 of your testimony -- do you have that?

A I will shortly.

Q I'm referring to the top -- the carry-over paragraph.

A Yes.

Q Do you have that?

A Yes.

Q Now, you say there in the last sentence that "I have drawn the three demand curves under the assumption they are linear and have identical price elasticities at the equilibrium market prices," correct?

A Yes.

Q Now, I want to make it clear for the record, are you saying that they have to be linear to work?

A No. I think the same conclusion could follow from constant elasticity demand curves as well.

Q Are you saying that they have to have identical price elasticities at the equilibrium market prices to work?

A I'm saying this. If they are linear or they have constant elasticity, they have to have the same elasticity. Obviously, if these -- if these demand relationships vary erratically over their length then it could be a different conclusion.

Q Well, would it be fair to just change that sentence by striking "they are linear and" -- I'm sorry. Just strike "are linear and" -- could that sentence be read correctly to state your position?

A I think technically that would leave me open to people showing that one could draw a demand

curve which has the same elasticity at the equilibrium, but behaves quite erratically above that and therefore for which the conclusion wouldn't follow.

For well behaved demand curves, the sort which -- which we find actually estimated in the empirical demand literature, I would be happy with that. But, it wouldn't -- it wouldn't include all possibilities.

Q Okay. So, if I understand your correctly, you could have identical price elasticities at the equilibrium market prices, but have different curves?

A Have different curves? Oh, certainly. You can have the same elasticities and quite different demand curves.

Q And in that case, let's say I have two situations. They have identical price elastices at the equilibrium market price, but they have different curves. That's as much as I can understand, okay, so put in whatever assumptions you have to.

Would those two have the same relationship between total value and marketplace value?

A I'm trying to be responsive to -- to your question. It is possible, again, to have some demand relationship which has the same elasticity at these

three points here.

But what becomes quite discontinuous at some point -- it would be -- it would be quite different from almost any demand curve that one sees estimated in the empirical literature of economics. But, it's possible.

So, I don't want to tell you that simply because I show you that you have demand elasticities the same at these three points, it is always true that this relationship would hold because someone could come in and show you some strange geometry in which that would not -- not be the case.

It would be unlikely that it were not true, but it's -- anything is possible, you know, as far as hypothesis goes.

Q Right. Let me ask you just to refer to the Syndicated Series XY graph on Figure 2. And I want to specifically refer to the corrected one.

A Yes.

Q Now, I just want to read your exact words. On this corrected version, which first of all has two demand curves, does it not?

A Well, the -- the intention of putting the one which falls from 30 to 10 over the range of zero to 20 weekly hours was to eliminate the other one.

Q That's right. But, the way it's drawn here and it appears on this page, there are two lines drawn there, is that correct?

A Yes. One is to imagine that that one doesn't exist.

Q Right. We just pretend it's not there. But, fortunately it's there and it'll lead to my question.

In this case do the two lines have identical price elasticities at the equilibrium market price?

A You're referring to this line here?

Q The line -- excuse me. I'm referring to the point of 20 weekly hours and $10 per hour.

A But, you referred in your question to two lines. Which two lines are we talking about?

Q Well, I'm referring to the line that begins at $20 per hour and runs over to 20 weekly hours and the line that begins at $30 an hour and runs down to 20 weekly hours.

A Those two lines have different elasticities at the point of price of 10, quantity of 20.

Q Okay. And therefore they have different relationship between total value and marketplace

value, correct?

A Correct. Correct.

Q Okay. And there are some other circumstances where you could figure out someplace that has an identical price elasticity at the equilibrium market price, but the curves are different?

A There are lots of possibilities for curves being different and elasticities being the same. But, it is likely that if the elasticities are the same regardless of those curves, it is likely that the relationship between total and marketplace value would be the same unless they're rather strange demand curves.

Q Well, I'm just trying to understand what was the limitation that you placed on why I couldn't take out the words "are linear and" in your sentence.

A The reason for that was that -- that as I mentioned --

Q Remember, this is the one you got a lot of laughter on, so --

A Right. Right. Well, it's -- it's a technical point. And I frequently laugh when people tell me about the greenhouse effect.

The technical point is that if I were to--

to put it in that way, someone could point out that he could draw a demand curve, which is quite different from what one normally finds estimated, which does have the property and the same elasticity at this point, but behaves in some erratic fashion and therefore technically I would have mistaken the point.

I did not want to be trapped into that and as a result I suggested you could not take out those words and be formally correct under all possible hypothetical situations.

Q But, it doesn't have to be linear?

A Oh, certainly not. It would have been easier to demonstrate my point if I'd used constant elasticity demand curves, but it wouldn't have looked as nice in the drawing.

Q Now, again going to your example or actually if we just stay with it and you can refer please to Program Suppliers Exhibit 6X. Now, in this situation on Figure 2 in the hypothetical that you've drawn, we had total value of 600, correct, in the top situation for Sports? The total value was 600?

A Yes.

Q And then the marketplace value was 300, correct?

A Right. Right.

Q Now, if we look at Program Suppliers Exhibit 6X, we see that the marketplace value has gone from 300 to 400, correct, under the assumptions that I've drawn?

A Yes.

Q But, at the same time the total value has come down, correct?

A Yes.

Q And first of all, that's certainly a different relationship from the one that you've drawn in your hypothetical, correct?

A Yes.

Q Between total value and marketplace value?

A Yes. As I mentioned before, as you move up that demand curve in the top panel from a price of $100 towards $300, the elasticity will be rising and the relationship of total value to marketplace value will be falling throughout.

You wouldn't have to go to two. You could go to 2.9, 2.8, 2.7 -- any place on that demand curve above -- less then three hours or above $100 in price, that would be true.

Q And in that situation when you say "falling" what you mean is that the marketplace value would come closer to the total value as you move up

with the price?

A Yes, that's another way of saying the same thing.

Q Okay. So, that if we only purchased one at $300 in your example on Figure 2, the marketplace value and the total value would be exactly the same in that circumstance?

A If one were only permitted to buy discreet units and that is not the case in Figure 2. But, under that assumption, your -- your conclusion would be the correct one. Figure 1 would give you that result, yes.

Q Yes. Figure 1 would. Now, I want to turn to the second -- as I understand it, the second part of your -- according to your testimony, you can reach the same conclusion even if the elasticities are totally different for the different program types, is that correct?

A Yes.

Q And you've set that forth on page 14 of your testimony?

A I don't recall the page. Yes, at the bottom of page 14 I get into that discussion.

Q Now, could a cable operator bargain collectively with each Phase 1 Program Supplier group

in a free marketplace?

A The -- I think the -- if I understand your question, I think you would mean could a cable -- could the Program Suppliers bargaining collectively?

Q Yes.

A The assumption is the cable operator bargains with the collective of the Program Suppliers, correct.

Q You're exactly right.

A It is possible to imagine that that would be the institution which would be permitted under law. We have a situation now, as I understand it, and I participated in this process 15 to 20 years ago, which -- in which we used compulsory copyright because there was an assumption that the market costs -- the transactions costs would be so high that it would be an inefficient way to organize the market.

It's possible that the same conclusions-- the same assumptions could lead you to a conclusion that the way to organize this market would be to allow collectives to bargain with cable operators, as for instance, occurs regularly with Music Rights in the current marketplace environment.

Q Is that allowed under current law, do you know?

A The current law provides for compulsory copyright.

Q But, let me put it a different way. The situation that your positing would require that to be written in law. That is, that the claimant categories could bargain collectively with cable operators, would it not?

A I do some work in anti-trust, but I'm not a lawyer. I observe that collectives do bargain without specific anti-trust exemption. Major league baseball would be an example.

Q I'm sorry.

A Go ahead. Go ahead. That's all right.

Q Could major league baseball -- do you know in this case that major league baseball is not the entire Sports category?

A I know that, yes.

Q As much as Mr. Garrett would like that.

A Yes.

Q Could major league baseball bargain collectively under present law with National Hockey League and NBA and college football -- the various collegiate things and offer an all or nothing programming choice to cable operators?

A You're asking -- you're asking me for a

legal conclusion and I'm not a lawyer. My surmise would be that it would be difficult under current anti-trust law and it might be challenged. But, the outcome of that case, I -- I don't know what the outcome of that case would be.

Q Now, when you're doing something on an all or nothing basis would you want to have more program types in a collective or fewer?

A Your question is what I want.

Q Yes.

A I don't know what I would -- I don't know what I would want.

Q You're not the cable operator. You're the collective. For example, would you just want to have major league baseball or would you want to have -- and you were representing all the sports interests, would you just want to have major league baseball or would you want to have all of them in one collective?

A That's a very difficult question to answer because if I am one of the participants in this process, clearly to maximize our total gains in this process, -- our total gains -- I would want everybody to negotiate collectively with the cable operators to extract the maximum rent.

However, I couldn't be sure that in the

process of doing that that I would get my share. So, I'd have to know something about how the shares would be divvied up.

Q So, let me put it a different way then. Would we get the maximum price from cable operators where we're bargaining collectively with a larger group or a smaller group?

A I think generally one would conclude that the -- that bringing more and more groups into the-- the collective would increase our bargaining power and the -- and the amount of rents we could extract.

Q Now, my -- is my understanding correct that it's your view that in responding to the Bortz Survey the cable operators were in effect thinking on an all or nothing basis?

A That they were thinking that the question assumed that they would be negotiating on an all or nothing basis with the seven program types in the survey? Is that -- is that your question?

Q Yes, that's my question. Is that what you assumed that the operators were answering?

A No, I don't believe that is my assumption at all and I don't believe I said that in my testimony.

Q What is your assumption of what they were

thinking?

A I'm -- I'm not sure that -- that it's important -- necessary for them to make any assumption. They were asked how they would allocate the value of these programs relatively across the different program types. So, I'm not sure that I -- that I make any assumption about what that market would look like.

Q Well, is it fair then that some of them could have been answering in terms of "I could buy any amount that I wanted at different prices" and others might have been thinking all or nothing?

A I simply don't know.

Q That that doesn't change knowledge of how they were answering that question doesn't change any of the analysis that's contained in your testimony?

A The analysis contained in my testimony is what it is. Whether it reflects the outcome of the Bortz Survey may depend on -- on such questions. But, I think the Bortz Survey was trying to get simply the measure of total value. These total values in these areas here and their relationship one to the other regardless of the market institution that would be assumed to exist in the absence of compulsory copyright -- compulsory license.

MR. LANE: If I could just have one minute. I just want to run through my notes.

CHAIRMAN AGUERO: Five minutes?

MR. LANE: I just need one or two, 45 seconds -- 40 second time out?

CHAIRMAN AGUERO: Okay.

MR. LANE: Two minute warning?

(Whereupon, at 11:40 off the record.)

CHAIRMAN AGUERO: Mr. Lane?

MR. LANE: I have no more questions, Mr. Chairman.

CHAIRMAN AGUERO: No more questions. Doctor Crandall, the counsel wish to have the opportunity for questions for you.

MR. CASSLER: Doctor Crandall, I have a question about product differentiation. One issue that is constant in our hearing is duplication. A cable system makes an offering to its subscribers of Local TV, Network TV and Cable Networks and distant signals.

On the Local, the Network and the Cable Networks, there's plenty of Sports, Movies, Series, Public Affairs, News, Religious -- all the categories that are in this hearing.

So, the question that the Tribunal -- or

perhaps Doctor Besen's criticism -- the question is what is the marginal value of those program types coming in on distant signals?

But, there's product differentiation and that is, if on the Local and Network and Cable Networks there are thousands of hours of Sports, it depends what kind of additional Sports is coming in. If it's a traffic pull, the marginal value will go down to nothing.

THE WITNESS: Now, wait a minute. Maybe.

MR. CASSLER: But, if it's the World Series, it'll zoom straight up regardless of 1,000 or 4,000 or 10,000 hours of Sports programming. And the same can be said of every other category without giving examples.

So, my question is, have you considered product differentiation in your analysis and is it possible at all for elasticity to be the same when you don't know what the marginal product is going to be? It could be wildly different.

THE WITNESS: Well, that obviously introduces another complication into this process. And it doesn't invalidate anything I said. It simply means that when you -- if you were to have actual real world estimates of these demand relationships, one

would have to specify in that demand relationship various qualitative variables in order to estimate the demand elasticity.

For instance, I presume that you didn't choose your car that you currently drive at random. You bought a car because the particular attributes appealed to you.

There are studies, however, the price elasticity of demand for automobiles, even though automobiles are quite different -- different makes, models and price categories -- the way in which this is handled is that the different characteristics of the automobile are included in the demand relationship and then the price elasticity is estimated.

Now, it may be that the price elasticities for different types of automobiles are somewhat different. But, you'd be surprised how narrow a range the estimates on the price elasticity of automobiles is. And, for instance, if you were to estimate the price elasticity demand for washing machines and -- and other sorts of durables, they are -- they don't vary between -.1 and -1000. They all vary between -.6 -.7 to -1.2.

So, the differences are not that great, but it is possible to accommodate that and the

conclusions would still follow.

CHAIRMAN AGUERO: Any questions from this side?

COMMISSIONER ARGETSINGER: Yes. Doctor Crandall, am I correct, marginal value is of less importance when it's a retrospective study then a prospective study when you're asking the respondent what they did do as opposed to what they would do in the future?

THE WITNESS: No, I think it has the same -- it has the same relevance. I think it's the same relevance if -- if they are asked a question about how much would they buy if the price is 200, 100 and so forth, marginal value is -- is reflected in their answers to that question.

CHAIRMAN AGUERO: Commissioner, any questions?

COMMISSIONER DAUB: No.

CHAIRMAN AGUERO: Music?

MR. FABER: No questions.

CHAIRMAN AGUERO: No questions. You want a five minute recess?

COMMISSIONER ARGETSINGER: Well, let's have a survey here and see what --

CHAIRMAN AGUERO: NAB?

MR. STEWART: No questions.

CHAIRMAN AGUERO: PBS?

MR. OLSON: Yes, sir, we do have some questions.

CHAIRMAN AGUERO: For how long do you think you might have, Mr. Olson?

MR. OLSON: Well, a little longer then I thought yesterday. My best bet would be half an hour to 45 minutes.

CHAIRMAN AGUERO: We have quarter to 12:00. We're going to have a five minute recess and we'll return to finish around quarter to 1:00 and then have a break for lunch. Devotionals, how long do you might have?

MR. GOTTFRIED: Ten to 15 minutes. Mr. Olson, if you could let me go first so I can make sure I can --

CHAIRMAN AGUERO: We can have the opportunity to do you before Mr. Olson, yes.

MR. GOTTFRIED: That's fine.

CHAIRMAN AGUERO: Then you don't want any recess? Okay, Devotionals -- Mr. Gottfried?

CROSS EXAMINATION

BY MR. GOTTFRIED:

Q Doctor Crandall, it's not going to

surprise you, but I want to discuss a little more the point that came up this morning about the difference between the broadcast market and the cable market.

Let me give you a hypothetical. This occurred to me about 3:00 this morning. Suppose we're going to hear a lot next about how baseball is an American religion. Suppose that baseball really wanted to simulate the American religion that I grew up with.

In 1955 I went to Ebbets Field for the first time. What you do in between the innings is you listen to "How Dry I Am" played on the organ. No scoreboard with advertising on it. Just numbers come up. Maybe Mr. Garrett remembers Wrigley Field. Hand numbers. No commercials. No commercials to interrupt the flow of the game -- the American religion.

And Mr. Vincent went to the broadcast networks, CBS, and said "we've decided to make this a commercial free program" what would the network pay for that program as the networks are currently constituted?

A Well, in the absence of a reason to -- to engage in public relations or otherwise satisfying the Federal Communications Commission, in 1955 and their ascertainment requirements, they would not pay

anything for it.

Q I'm not picking on Sports here.

A I understand.

Q Suppose Mr. Valenti, who said he opposed commercials in the movie theaters decided not only did he oppose it in the movie theaters, he opposed it on TV too and the way to get people back to the movie theaters was to show them commercial free movies on the networks.

And by the way, that was Mr. Vincent's motivation too. Not to just turn it into a religion, but to get people back to baseball or more people -- even more people in.

And Mr. Valenti said "no more commercials during movies on commercial TV." What would CBS pay for that movie?

A It wouldn't pay anything for it if it's-- if they have to earn their revenues from advertising.

Q And you're aware, or maybe you're not aware, that Devotional programming is commercial free and at the insistence of the programmers. Are you aware of that?

A I'm not aware of that.

Q Now, let's go to the cable market that you talked about a little. Does the fact that it was

commercial free and given away and therefore that the price was zero on CBS have anything to do with the price that program would attract when Mr. Vincent then went to the cable operators and tried to sell it to them?

A I'm sorry. Could you ask the question again?

Q Suppose Mr. Vincent had now gotten a zero price. He stuck with his guns. He wanted to do it for whatever reason he wanted -- or Mr. Valenti -- and he got a zero price from CBS.

Isn't it a fact that the market on cable systems in still indeterminate -- the price that that would get?

A Well, the -- there's a market on cable and that market does not necessarily reflect the market in the broadcast medium, which is driven by advertising revenues, if that's the question you're asking.

Q That is the question. As I can figure what would happen, the cable operator would say to Mr. Vincent, "well, you're giving it away to the broadcast stations. Why don't you give it away to us?" And Mr. Vincent would say "I don't want to give it away to you. If you want it too, you're going pay for it."

And then we'd get some negotiation and where the price comes out, we just can't tell. But, we can tell that just because it was zero on the broadcast station, it's going to wind up zero on the cable stations, can we?

A No, we cannot.

Q And in fact, it's not likely to wind up zero, is it?

A I don't know where it's likely to wind up. If there are enough people who want to give it away, it could end up at zero. But, it would require the hypothesis that there are enough people who want to give it away to drive down that demand curve to the point where the price is zero.

Q Okay. But, the point is we just can't tell by what we know from the broadcast point.

A No, we cannot.

MR. GOTTFRIED: I have no further questions.

CHAIRMAN AGUERO: Okay. Then after this, all the record, the Phase 1 proceedings is closed for today and forever. No sponsors, no television, no baseball, no Movies. We don't have that to do here any more.

COMMISSIONER ARGETSINGER: I just have one

more question on a hypothetical.

CHAIRMAN AGUERO: Let's go back to the record now.

COMMISSIONER ARGETSINGER: On that hypothetical, I assume there would be a benefit to the cable operator to carry such programming?

THE WITNESS: The mere fact that the price could fall as low as zero does not mean that there couldn't be substantial benefit from it. Now, the example that -- that Stanley Besen used in the '83 proceeding of the classic choice between diamonds -- a comparison between diamonds and water.

Most of us obtain incremental gallons of water at either very low prices or in some jurisdictions at a zero price, but obviously water has tremendous total value to us. Diamonds are priced very highly and the relationship of total value to marketplace value in diamonds may be much, much lower and the reason is that the price sensitivity of the demand for diamonds is much -- likely to be much higher.

But, the fact that water is given away doesn't mean to say that it's total value is zero.

COMMISSIONER ARGETSINGER: Well, correspondingly to the copyright owner would there be

harm? Although there is benefit to the cable operator where would the harm lie with the owner who's been giving the product away?

THE WITNESS: Well, when you say "would there be harm" you mean comparing the current situation of compulsory copyright licensing versus what a free market would be.

COMMISSIONER ARGETSINGER: Yes.

THE WITNESS: Then presumably there is no harm if -- if the only thing he is concerned about is -- is the price, then there would be no harm.

COMMISSIONER ARGETSINGER: Thank you.

CHAIRMAN AGUERO: Commissioner?

COMMISSIONER DAUB: No.

CHAIRMAN AGUERO: Well, I think it's time for us to have lunch. We'll probably turn around 1:30? Quarter past 1:00?

COMMISSIONER ARGETSINGER: Quarter past 1:00.

COMMISSIONER DAUB: Yes.

CHAIRMAN AGUERO: We'll have a break for lunch now.

(Whereupon, the hearing was recessed at 11:54 to reconvene at 1:15 this same day.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

1:20 p.m.

CHAIRMAN AGUERO: Off the record.

(Whereupon, briefly off the record.)

CHAIRMAN AGUERO: Mr. Olson, will proceed with Mr. Crandall.

MR. OLSON: I'll be pleased to, Mr. Chairman.

CHAIRMAN AGUERO: Thank you.

MR. OLSON: I would first like to just note for the record, because I think it's rather significant that the testimony thus far has established that baseball is both Educational and Religious, and I'm not sure what that means, but I thought we ought to take note of it.

MR. GARRETT: It'll be in our proposed findings.

CROSS EXAMINATION

BY MR. OLSON:

Q Doctor Crandall, there's a tradition that one starts an examination with an easy question, so I want to follow that tradition. Are you an economist?

A Yes. Yes, I am.

Q And you're testifying in your capacity as

an economist, right?

A Yes.

Q Okay. And as I understand it, the essence of your testimony is that if you make certain assumptions a constant sum survey of cable operators could be valuable to the Tribunal in dividing up royalties among the different program types, is that correct?

A The essence of my testimony is that a survey of this sort which gets at relative total values can be useful and it could be useful under a variety of assumptions and to lay out the requirements for it to yield particular results.

Q And you discussed some of the requirements with Mr. Lane this morning, is that correct?

A I did, yes, indeed.

Q Right. I wanted to just explore some of the other requirements that have not been fully flushed out yet.

You have only rarely been involved in the course of your career with survey research, isn't that correct?

A Yes, I've been a consumer of survey research in the work I've done in broadcasting and cable, but I do not do survey research per se.

Q Right. And based on what we discussed yesterday, you've almost never been involved with a survey that gathered subjective information from respondents, isn't that right?

A I think that's right. Very little, if any, of my research I can recall involved my collection of subjective information through survey research.

Q Right. And you are not holding yourself out to the Tribunal as an expert in the techniques of survey research, correct?

A Certainly not.

Q Okay. Now, in your field of economics there are, although there are certainly matters that are controversial, certain principles that are generally accepted in your field, isn't that right?

A Yes.

Q And I assume, and let me ask you if you do as well, that there are also certain generally accepted principles in the field of survey research?

A I don't know, but I'm willing to assume that.

Q For example, would you assume that there are principles about good survey design?

A I know nothing about it. I presume there

are, yes.

Q Right. And there are presumably principles about appropriate ways of wording survey questions?

A I assume so.

Q All right. And presumably there are principles in the survey research field about who precisely one ought to be interviewing?

A I assume so, yes.

Q All right. And presumably there are principles in the survey research field about avoiding bias in a survey, correct?

A Yes.

Q And there are surely principles in the survey research field about appropriate sample sizes, right?

A Yes, I'm sure there are.

Q Okay. And I don't know whether you're aware, but the Tribunal has had some things to say from time-to-time about the appropriateness of certain aspects of surveys that have been presented to the Tribunal. Are you aware of that?

A I believe so, though I hadn't focused on that part of the Tribunal's decisions.

Q Okay. Doctor Crandall, I'd ask you if you

could turn to page 6 of your prepared testimony and direct your attention in particular to the first sentence under III, Summary of Conclusions?

Could you just read that sentence into the record?

A It says, "The Bortz Survey provides information that an economist would consider useful in accessing the relative value of distant signal programming categories."

Q And would you also read the sentence that starts on the very bottom line of page 6?

A "I believe that the Bortz Study provides the best available measure of relative marketplace values of the distant signal program categories."

Q Thank you.

I would just like to confirm, Doctor Crandall, an assumption that I think is implicit in your testimony but I'd like to make explicit and lay it out for the Tribunal.

The assumption is that the Bortz survey was well designed and well administered in accordance with accepted principles of survey research. Is that fair to say?

A Yes, I assume so. If the study -- if the Bortz survey were performed in a totally incompetent manner giving bias to incorrect answers, then

obviously I wouldn't -- I wouldn't make that statement. I assume it was competently prepared by Doctor Bortz.

Q But you're simply assuming --

A That would be my assumption, certainly.

Q And you have not investigated that independently?

A I have not.

Q Okay. So, just let me make sure I understand, if the Tribunal accepts your views about the economics of things, how much that constrains the Tribunal in terms of what their ultimate decision is on the merits in this proceeding. Let's suppose, for example, that the Tribunal found that the Bortz survey had been poorly designed. You're not suggesting that anything in your testimony would require the Tribunal to give total weight to the Bortz survey in spite of that law, correct?

A No. If the -- if the Bortz survey is poorly designed and poorly executed, it certainly diminishes its value.

Q Again, just to clarify, if the Tribunal were to find that the wording of the questionnaire favored some parties and harmed some other parties, you're not suggesting that the economics of it would

require the Tribunal to place complete reliance on the Bortz survey, correct?

A Right.

Q Okay. If the Tribunal were to determine that the survey did not have an appropriate introductory or screening question to make sure that the person on the other end of the phone line was the right person to be talking to, you're not suggesting that the Tribunal would, nevertheless, be forced to give a 100 percent reliance on the Bortz survey, correct?

A No.

Q Okay. If the Tribunal were to find that the interviewers who actually conducted the Bortz survey were told to go ahead and conduct an interview with someone even if they protested that they had never before done a programming budget, you're not suggesting the Tribunal would, nevertheless, have to give complete weight to the Bortz survey, correct?

A Well, if you're asserting that that is a serious requirement, about which I know nothing, then I suppose -- anything that -- that would render the Bortz survey invalid would, as a measure of anything, would render it useless for my purposes.

Q Let me just clarify that with a couple of

other specific examples, Doctor Crandall. If the Tribunal were to find that the survey had had too small a sample for certain programming categories, you're not suggesting that they would, nevertheless, have to place complete reliance on the Bortz survey, correct?

A Not complete reliance. They'd just have to increase their estimated standard errors, I suppose.

Q And if the Tribunal found that there were large swings from one year to the next in the valuation given to a particular category of programs and the Tribunal believed that that was a sign of some defect in the survey procedure, you're not suggesting that they would, nevertheless, need to give total reliance to the Bortz survey, correct?

A No.

Q Now, if the Tribunal found that some of the early questions in the survey had biased observers into thinking about certain categories and that that had influenced their answers to the final key question, you're not suggesting that the Tribunal could not take that into account in evaluating the weight to be given to the Bortz survey?

A No.

Q Okay. And if the Tribunal found that the Bortz survey had improperly failed to ask about a particular type of programming when they were talking to 86 percent of the cable operators, you're not suggesting the Tribunal could not take that concern into account in evaluating the weight to be given to the Bortz survey?

A No, no.

Q And now, Doctor Crandall, you know that the survey was intended to look at the value only of non-network programming, correct?

A That's what I understand.

Q So that the programming on ABC and CBS and NBC TV networks was not supposed to be included in their valuations of the different categories?

A That's my understanding.

Q And if the Tribunal were to find that because of a flaw in the survey design some cable operators had potentially included highly valuable network programming in their valuations of a particular category, you're not suggesting they couldn't take that into account in looking at the weight to be given to the Bortz survey?

A No, I'm not.

Q Okay.

(Tribunal confers.)

CHAIRMAN AGUERO: Okay, Mr. Olson.

MR. OLSON: Thank you, Mr. Chairman.

BY MR. OLSON:

Q Doctor Crandall, could you explain again just to make sure the idea is fresh in all of our minds the concept of consumer surplus?

A Consumer surplus in my discussion this morning was simply the difference between what we've been calling total value and marketplace value.

Q Let me see if I can put it into my words and see if I've got it right. If a particular product is worth a $100 to me but because of the operation of the marketplace I only have to pay $20 for it, then I have $80 worth of consumer surplus, is that correct?

A That is correct. Presumably you would have continued to buy that product or service up to the point where the incremental unit was worth $20 to you, but those that were valued $100 to you would generate $80 worth of surplus, consumer surplus. Right.

Q Thank you.

Now, in this situation when a cable operator is carrying a distant TV station, the price they pay is set by the government, isn't that right?

A The price they pay is embodied in the

legislation, yes.

Q Actually embodied in the legislation as modified by this Tribunal, right?

A Right.

Q Okay. Now, if we look at the amount that a cable operator has paid to carry a particular TV signal, we don't know just looking at how much he paid what he would have been willing to pay in a free marketplace for that signal, right?

A That's what the Bortz survey is getting at. That's what they're trying to find out, how much he would be willing to pay, correct.

Q I understand that's what you're trying to get at.

A Yes, right.

Q But just looking at how much the cable operator has paid doesn't tell you how much he would have been willing to pay?

A No. No, it won't.

Q So, if he paid $20 to carry a particular signal, it might have been worth a $100 to him?

A Sure.

Q And just looking at the amount he paid just doesn't tell you that?

A It does not by itself.

Q Okay. Let me turn to a topic that Mr. Argetsinger raised with you briefly this morning. There are two ways, perhaps more than two but at least two ways that this survey might have worked. It might have been asking cable operators to look back to 1989 to the very specific programs, not just program types, but the specific programs that were shown in 1989 and then to place a value on those specific programs? Do you understand that way of looking at it?

A Yes.

Q Okay. Now, another thing that this survey might have been doing is asking the cable operator employees to look forward and to think about the types of programming, such as Sports or Movies or Public Television programming and for the future deciding how much of each of those types of programming they would buy. Do you follow my distinction?

A I follow your distinction.

Q Does it matter for purposes of your analysis which of those two things this survey was doing?

A It doesn't matter for the purposes of analysis of the sort I did, namely the -- determining whether the relationship between total value and marginal value are the same across program types. It

would say something about whether they're accessing those values for one bundle of programs or for another.

Q Would it make any difference to the supply issue that Doctor Besen raised?

A It really doesn't -- let me see. Let me modify that. I doubt that it makes any difference. It suggests -- the answer would tell you what the cable operator -- how the cable operator values various bundles of programs, not necessarily what the cable operator thinks a specific price in the marketplace would be.

Q Well, let me just ask you a very simple minded question, because that's the only kind I can really ask in this field. Let's suppose that of all the program hours that were shown on distant signals in 1989, five percent of those program hours were Sports. And suppose that a cable operator liked Sports and would like to have more of it on his distant signals in the future and that if he had his druthers, he would have bought ten percent for the future. Would that make a difference to Doctor Besen's supply criticism?

A Not specifically. What your dichotomization of the possible responses would tell

me is what the cable operator surmises his ideal allocation of his budget might be relative to what it would have been had he bought the same programs. It doesn't tell you anything -- what -- what Doctor Besen was talking about was -- was what the reservation price would be for the individual types of programs and how that price might be.

Q Okay. Well, let me leave Doctor Besen's point behind and ask you about my simpleminded point. If a cable operator in answering this survey was thinking, "Gee, I really like Sports. I want to buy twice as much of it next year as we actually had in 1989." Would that make a difference to the validity of this survey in allocating royalties paid for 1989?

A If the Tribunal decides that, in fact, the appropriate measure is the measure of the value of what the cable operator did carry opposed to what he would like to carry, then if he answers it in terms of what he would like to carry, presumably it would not give the correct response.

Q Let me turn to another topic, Doctor Crandall. In your research you've looked at a number of different kinds of businesses, right?

A Yes.

Q Is it fair to say that some businesses

sell relatively simple products and other businesses sell rather complex products?

A Yes.

Q Could you just give me an example or two of a business that sells a simple, easy to understand product?

A From my own experience, a small mini-mill steel mill that sells nothing but small diameter bar shapes of steel.

Q And they're selling, am I right, essentially a generic product?

A Yes, in almost every case that you come up with a generic product it terms out there are 500 different sizes and grades of it, but --

Q But along the --

A -- yes. It's --

Q -- continuum of industries --

A Easily grades, easily described, yes. Standard sizes and grades, right.

Q And you sell them all by themselves, you don't bundle them with a bunch of other different products? You just sell the ingots, is that the proper term?

A No, you sell the rolled products. Generally, that's correct, yes.

Q Okay. And, for example, a gas station just selling gallons of gas, that's a fairly simple product, right?

A Yes.

Q And it's fairly easy for a gas station operator to know kind of, as Mayor Koch would say, "how am I doing." He can figure out how many gallons of the 86 octane and how many gallons of the 89 octane have sold, and he's got a fairly simple information environment, right?

A Yes.

Q Okay. Now, there are other industries in which business people have a sort of complicated information environment, right?

A I suppose there is.

Q For example, if one is selling a product that bundles together lots of different components and you sell it all in a package, it's more complicated to figure out what your buyers care about than if you're selling a gallon of gasoline or a rolled steel product, right?

A I suppose so, yes.

Q Okay. Now, let's think about cable operators. In certain respects they're sort of like a gas station in the sense that they sell pay-per-view

programs from time-to-time, right?

A Some do, yes.

Q And for those programs they have a very simple feedback mechanism, if you will. They can figure out exactly how many people signed up to purchase a particular program, right?

A I guess so, yes.

Q So that's kind of a direct marketplace source of information about what value people place on that program, right?

A Yes.

Q And at the next level there are pay channels such as HBO and Disney, correct?

A Yes.

Q And those channels, the cable operator may not know specifically what programs somebody is buying the channel in order to get, but they know that somebody is willing to pay a certain amount of money to get HBO in a given month, right?

A Yes.

Q So that at least gives them somewhat more information than when one is selling a bundled package of many channels, correct?

A Yes.

Q Now, let me just hand you a document that

what they look like.

Q And what you did then was assume that in the absence of studies they were constant, isn't that correct, among these three categories of programs?

A I didn't assume anything. I -- I demonstrated that if they are the same across program categories, then relative total values serve adequately as a proxy for relative marketplace values.

Q But, there are no surveys, no studies of which you are aware that shows what the elasticity is of Sports, Movies and Series by cable operators?

A As I said yesterday, no, I know of no such studies.

Q And in the absence of any studies you assumed that the elasticities were the same, did you not?

A No, I simply said that I know of no studies that show they're different. I -- I think it's an -- an open question. I have not concluded that they are the same. But, what -- what I said yesterday was that one would need evidence that they are substantially different in order to conclude that estimates of total value are misleading as measures-- as indications of relative marketplace value.

MR. LANE: Mr. Chairman, might I have a

was placed in the record yesterday. It's PTV Exhibit 25X. And it's a list of the channels that were carried by a particular cable system in Laredo, Texas in 1989. You see that that cable system was selling in the first instance good reception of local TV stations, right?

A Well, they were carrying them, yes.

Q Right. But one reason people subscribe to cable is to get better reception of local TV stations, isn't that right?

A In some locations, yes.

Q Right. And they were also selling, I haven't counted, it looks like it might be 14 or 15 different non-broadcast channels, correct?

A Something like that. A little more than that, yes.

Q Right. And they also have a number of local origination channels, correct?

A Yes.

Q And they also offer pay services?

A Yes.

Q And they even have one pay-per-view service down under the pay services categories?

A Yes.

Q And they're also selling things like

remote control devices as part of their package, right?

A Where's that?

Q It's not on this document.

A Oh, I see. I'm sorry. I'm sorry. You mean that they -- they have converters, is that what you're talking about?

Q Let me start again. I don't know about Laredo Cable Systems, but it's fairly commonplace in the cable industry for the cable company to provide you with a little handheld remote control device that you can use to change the channels.

A Right. Usually it's in combination with a converter, yes.

Q Right. But that's part of the package they're selling?

A I presume. I presume, I guess.

Q Okay. And they also are selling program guides as part of the package, right?

A I guess so. I don't know this particular one.

Q And isn't it true that customer service in terms of making repairs quickly and that sort of thing, that that's actually quite important in the cable industry?

A I would presume so, yes.

Q So, they're also selling good customer service, or at least they hope they are, right?

A I would presume so, yes.

Q Now, if we look at PTV 25X, this is, of course, just a list of the channels that this particular cable system was carrying. But, of course, every channel has different programs going on at different times of the day, correct?

A Well, yes. I mean, they have different programs at different times of the day. That is correct, yes.

Q Right. Let me just hand you an exhibit that I have premarked as PTV Exhibit 26X. This is not the precise set of channels that was available in Laredo in 1989 because I didn't happen to have a TV Guide for that place for that period. This is just a recent TV Guide, but I offer to you just to illustrate the fact that on one particular Thursday evening, and not even looking at the full day, you've got what looks like perhaps hundreds of different programs being shown on different channels during that particular evening, correct?

A Yes.

Q Now, unlike a gas station operator, the

cable operator typically is not getting direct feedback about how strongly people care, that is cable subscribers care about any particular program carried on any particular channel, correct?

A Well, certainly not any direct feedback on the market for one of a bundle if it's bundled with others.

Q Right.

A He's constantly getting feedback as to how many people are connecting and disconnecting.

Q Right. But he's looking through a glass darkly a little bit in terms of trying to figure out the causation for the connects and disconnects, right?

A I suppose so, yes. There's other information available to him besides this.

Q Right. He may resort to various things to try to get some information about that, such as subscriber surveys, right?

A That's one possibility, yes.

Q Or asking people why they disconnected, right?

A That's another possibility. Sure.

Q But for somebody who is simply been a subscriber for a long time and has been getting a particular channel through that entire period, the

cable operator is not necessarily getting any information about why that person continues to subscribe, correct?

A Not necessarily, but he may be getting it from other sources.

Q He may be, but there's no guarantee that he will and he starts out, is it fair to say, with a rather tall order to try to figure out why all these thousands of people are connecting and disconnecting when he's selling them this very complicated product, right?

A He may start out that way. It seems to me that he can develop techniques for dealing with what, after all, is not the most complicated market in the world.

Q Do you know whether the Bortz survey asked cable operators what steps they had taken to determine the value of programs on distant signals to their subscribers?

A I don't recall their survey in detail, but I don't believe -- I just don't recall the survey in detail at this period of time.

Q Okay. That's fine.

A I should -- I should point out to you, Mr. Olson, that one of the aspects about the cable

television market is that there are thousands of markets out there for which there are data. And certainly no cable operator would be ignorant of what's going on elsewhere, particularly if he's a member of a MSO. But even if he's not, one can determine a lot about the attractiveness of programs from other permutations and other markets.

Q Right. Isn't it true, Doctor Crandall, that there are quite wide variations between cable systems in terms of which distant signals they carry?

A There are variations, sure, but one can observe how alterations in the mix of programming does in different markets which you think are relatively similar to your market.

Q I was sure you were going to say you can observe a lot by just watching, but --

A No.

Q Well, you mentioned MSOs, does it sometimes happen in the cable business that decisions about what channels to carry are made on a centralized basis by an MSO?

A It depends on the MSO and whether the system is wholly owned or whether it's not.

Q But if you have a system that is wholly owned by an MSO, in some circumstances somebody at

headquarters rather than somebody out at a specific cable system is going to make a decision about whether a particular channel will be carried, right?

A It's certainly possible, yes. It can happen, sure.

Q Doctor Crandall, let me ask you to look at page 16 of your testimony, the very last sentence on that page. I wonder if you could just read that for the Tribunal?

A On page 16?

Q Page 16, the sentence that start "Besen."

A Doctor Besen's second criticism?

Q The sentence after that.

A Oh, I'm sorry. I'm sorry.

"Besen points out quite correctly that a copyright owner would not offer his program to a cable operator unless the royalty offsets his potential loss of income in that cable market from other media."

Q Now, are you here talking about a hypothetical world in which there's no compulsory license and you have free market bargaining?

A Yes.

Q Well, let me ask you if you know to what extent this is true today even in spite of the compulsory license, and my question is this: when

major league baseball sells a package of baseball games to WTBS, do you think major league baseball is aware that that programming is going to be seen on cable systems around the country?

A Oh, certainly.

Q And do you think that would be a factor that would be taken into account in their bargaining?

A Certainly.

Q And can you think of any reason why major league baseball would accept less than a market price from WTBS when it sells them a package of baseball programming that it knows is going to be shown in cable systems around the country?

A A market price for what? For the entire bundle?

Q For the particular package of baseball games.

A For the bundle that they're selling?

Q Right.

A I can't think of any reason why they would sell it for less than they think it's worth and distribute it alternative ways.

Q Basically baseball could have sold those games to, say, to USA Network, for example, right?

A I presume so, yes.

Q Or perhaps they could have sold them to ESPN?

A I presume so.

Q Or to another cable service, correct?

A Yes.

Q So the price that WTBS pays even now with the compulsory license in existence presumably gives baseball the full value of the baseball games that they're selling to WTBS, correct?

A The value relative to their next best alternative with one possible exception, and that is an exception where they would offer it only on pay-per-view for the entire package including all the pay-off games and the World Series, in which case they would probably invite congressional hearings and legislation. And so given that they wouldn't want to do that as a public relations matters, I presume that they market it in a way they think gets them the highest value, yes.

Q And you mentioned that they got it for, I'm not sure I got your words right, the best price possible compared to the available alternatives?

A I would think so, yes.

Q And that's, in fact, what happens in any marketplace transaction is that you get the best price

compared to the available alternatives, right?

A That's what you attempt to do, yes.

Q Right. And there's no reason to think that this transaction of selling baseball games to WTBS in 1989 would be different in that respect from other marketplace transactions?

A No.

Q Okay. Let me turn to another topic, Doctor Crandall. You mentioned this morning that generally speaking economists expect, and you generally find confirmed in empirical work, that the marginal value of additional units of a particular product declines as you buy more of that type of product, is that correct?

A That is correct, yes.

Q Okay. Well, let's talk a little bit about the product that cable operators are buying. You are aware, obviously, that there are movies that are shown on a wide variety of different channels that are carried by cable systems, right?

A Yes.

Q For example, network stations such as ABC, CBS and NBC stations sometimes carry Movies, right?

A Yes.

Q And so that's one source of Movies that's

available to cable subscribers, right?

A Yes.

Q And a cable subscriber might get a better picture on his local ABC or NBC or CBS station by getting it through cable than he's able to get with just an antenna, right?

A In some instances, yes.

Q So that's movies where the cable operator is adding value for a viewer, right?

A Yes.

Q Okay. And there are also local independent stations that show movies, right?

A Yes.

Q And we spoke yesterday about the UHF handicap, you're familiar with that concept, right?

A Yes, I am.

Q Is it fair to say that what that refers to is the fact that people often don't get very good reception of channels with numbers higher than 13?

A In the UHF stations, yes.

Q Right. So, isn't it fair to say that one of the major developments of the past ten years in the television business has been that the growth of cable has coincided with the growth of UHF independent stations?

A Yes, I think it's fair to say and I've said in other venues that it has stimulated the growth of UHF stations. That is the growth of cable television has facilitated the growth of UHF stations, yes.

Q So, in 1989 there were more independent stations available to be carried by cable systems than there were in 1983, correct?

A I think that's correct. My recollection of the numbers is that it takes off very sharply around 1980 and is growing over that period. I would think that's almost certainly correct, yes.

Q Right. And those independent stations are often carrying movies, aren't they?

A Yes, I suppose.

Q For example, Channel 45 locally is an example of a recently developed or recently started independent station, right?

A I guess so.

Q Now, there are other ways that cable operators are buying movies, such as from non-broadcast cable services, right?

A Yes.

Q For example, there's a channel called American Movie Classics?

A Yes.

Q And that just runs movies all day long, right?

A Right.

Q And there's a channel called TNT?

A Yes.

Q And that has a lot of movies, right?

A I believe so, yes.

Q Okay. And there's a channel called Lifetime, and that sometimes has movies?

A Now you're beginning to test my knowledge of what's on my cable system and I'll take your word for it, yes.

Q Okay. And there's a channel called USA Network which is owned by movie studios and sometimes carries movies, correct?

A I believe that's right, yes.

Q And there's a channel called Arts and Entertainment that sometimes offers movies?

A Yes.

Q And there's a channel called the Family Channel that sometimes offers movies?

A Yes, I believe that's correct, yes.

Q Okay. And then there are a number of different pay services like HBO and Cinemax and so on

that offer movies, right?

A Yes.

Q And then there are pay-per-view movies as well for some cable systems, right?

A Yes.

Q So whatever movies are brought in on distant TV stations are coming in on top of a lot of other movies, right?

A In addition to, yes.

Q Right. And you mentioned that the economists generally expect the marginal value of a product to decline as one purchases more of it. If during a given week, a cable operator is carrying let's say 100 movies on other channels and the cable operator adds ten more movies by carrying a particular distant signal, those ten movies are unlikely to have the same value to the cable operator as the first ten movies that he carries, right?

A That's correct. And if you're talking about relatively -- movies of relatively similar viewer appeal, as you add more and more of them to the portfolio of the cable offering, I would presume that the value of them goes down at the margin, yes.

Q Okay. Let me now talk about Sports. Now, cable operators carry sports on a lot of different

channels, don't they?

A Yes, yes.

Q And, in fact, the very most important Sports events are almost always shown on network TV, isn't that right?

A There was discussion about that yesterday among people more expert than I. I will -- I will exceed to their judgment, which is yes --

Q Well, just to take the obvious examples, the World Series and the Super Bowl, they're both on network TV, right?

A Yes, I believe that's right. I believe that's right.

Q Okay. And the -- another category of games that people often hear a lot about are their home team games, right?

A Yes, of their local teams, right.

Q For example, here in Washington people are pretty fanatical about the Redskins, right?

A I guess so, yes.

Q And carrying Redskins games, whether by-- whether it's a broadcast station going directly to a viewer or a cable operator that's picking up the local broadcast station, that's a pretty high value, wouldn't you say?

A I would think so, yes.

Q And you're familiar with the fact that there are many local TV stations around the country that have bought the rights to carry, for example, the local team's baseball games, correct?

A Certainly.

Q So in Baltimore, for example, there's a channel called WMAR that in 1989 bought the rights to show some of the Orioles games, right?

A I guess so. I don't know when they bought them, but I think WMAR carries them, yes.

Q Right. And for people who live in Baltimore, getting access to their home Orioles' games is very valuable, isn't it?

A It was more valuable in 1983, but I guess it's still valuable.

(Whereupon, off the record.)

MR. OLSON: Back on the record.

MR. GARRETT: Can we get that on the record, please?

BY MR. OLSON:

Q Now, in addition to somebody in Baltimore being able to watch the Orioles on WMAR, they could also get other Orioles games by subscribing to something called Home Team Sports, right?

A I believe that's correct. It's true in Washington and I believe it's true in Baltimore.

Q And Home Team Sports is not one of the channels that's involved in this proceeding, right?

A Not to my knowledge.

Q Okay. So, between that local TV station, WMAR, and Home Team Sports, you've got just about all the home games of the, or, just about all the games of the Baltimore Orioles, right?

A I believe it's well over half, yes. I don't know how many.

Q And that's, just to be clear, that's very important programming for an Orioles fan in Baltimore, right?

A Certainly for an Orioles fan, yes.

Q Okay. Now, just to clarify, there are also hockey games that sometimes shown on local TV stations, right?

A Yes.

Q And again, people are typically most loyal to their own city's team, right?

A I guess that is.

Q And they're getting those games just essentially for free from their local station, right?

A If they're on a commercial station and

they are received clearly off the air, yes.

Q Right. Now, companies like Home Team Sports also carry the local teams hockey games in some instances, right?

A Yes.

Q And once again, those hockey games carried by Home Team Sports or similar companies are not involved in this proceeding, right?

A That's right.

Q And I believe, Mr. Garrett will correct me if I'm wrong, that companies like Home Team Sports also sometimes carry the local games of NBA teams. Is that correct?

A That is correct.

Q And that is also likely to be very high value programming for the fans of those teams who live in that area, right?

A Yes, I presume so.

Q It's their home team.

Now, there's also a channel called ESPN. You're familiar with that?

A Yes, I am.

Q And over the last few years, ESPN has been gradually buying more and more costly sports programming, isn't that right?

A I believe that's correct, yes.

Q And they've been, if you will, getting into the big leagues in terms of carrying quite major sports events, right?

A I believe so, yes.

Q And in the Fall of 1989 on ESPN, you could watch NFL football games, right?

A Now you're testing my memory. I think that's correct, though.

Q Okay.

A I'll go along with you.

Q And NFL football games are a fairly high value sports product, wouldn't you say?

A I would think so.

Q Okay. And there are lots of other sports on ESPN, right?

A Yes.

Q Such as college basketball or college football?

A Yes.

Q Okay.

A I admit to occasionally watching it, yes.

Q There are also sports on TNT, isn't that right?

A Yes.

Q Starting in the Fall of 1989, there was a rather expensive package of NBA games on TNT?

A I don't remember the date nor the cost but yes, I think they started somewhere around then.

Q Okay. And there are sports on USA Network sometimes?

A Yes.

Q And it could happen that somebody would get -- strike that. There are boxing events on HBO, right?

A Now you're testing my knowledge. I don't know. I don't watch boxing.

CHAIRMAN AGUERO: There's is boxing on HBO.

MR. OLSON: We have an expert.

MR. GARRETT: But you're not under oath.

CHAIRMAN AGUERO: I know. I know.

MR. OLSON: We have an expert witness.

CHAIRMAN AGUERO: Especially the big fight.

BY MR. OLSON:

Q So, is it fair to say, Doctor Crandall, that completely leaving aside the sports that are carried on distant commercial stations, cable operators are delivering a lot of sports to their

viewers?

A I believe that's correct, yes.

Q And they are delivering through the networks and through non-broadcast channels like ESPN and TNT some of the highest value sports products, right?

A Yes.

Q The national -- the games of national interest?

A Yes.

Q And cable operators through local TV stations or through a local or regional pay services like Home Team Sports, are delivering many of the most valuable games in term of home team appeal, right?

A I guess so, yes.

Q So, if you look at the super stations, what they are typically offering is the -- strike that. During 1989, WTBS carried games of the Atlanta Braves, correct?

A I believe that's correct, yes.

Q Now, for most people in the country, the Atlanta Braves were not their home team, right?

A Yes.

Q And in fact, they had access to their home team games by some other means, right?

A Many did, I have no idea what proportion did.

Q But those people who live in baseball cities typically had access, either through a local TV station or a home team sports type company, right?

MS. MADIGAN: Objection, this expert is -- this witness has not been offered to testify as to distribution of sports games on various cable stations. I think this exceeds the scope of the testimony and the witness has stated the scope of his expertise.

MR. OLSON: If he can answer the question, he can answer the question.

MS. MADIGAN: Well, I think the witness has said he doesn't know.

CHAIRMAN AGUERO: Do you wish to answer question, Doctor Crandall, or do you know?

THE WITNESS: Well, I -- the answer is--

CHAIRMAN AGUERO: You don't have any knowledge?

THE WITNESS: No, I don't know the answer to that question. It's not -- it's not something that I have studied.

BY MR. OLSON:

Q Well, let me just ask you then to assume

that in most cities where there is a baseball team, that many of the games of that team were available either through a local TV station or through a pay service such as Home Team Sports?

A Maybe the home games? You said the home games?

Q I'm sorry, pardon me. Many of the local teams games are available either through a local TV station or through a company like Home Team Sports?

A Okay.

Q Now, --

MS. MADIGAN: May I interject for a second. This whole line of questioning continues to pursue an area which is beyond the scope of the expertise of the witness. I'm not sure it contributes much in value.

CHAIRMAN AGUERO: Are you going to proceed with this cross examination?

MR. OLSON: No, I'm just about finished but Doctor Crandall has testified about marginal value and as I understand it, marginal value is of absolutely central importance to his testimony. And Mr. Cassler's question earlier today got at the issue of product differentiation and I think it's clearly an appropriate inquiry.

MS. MADIGAN: Well, may I just respond briefly to that?

CHAIRMAN AGUERO: Yes, respond --

MS. MADIGAN: The witness is not purporting to have measured marginal value by looking at the number of programs or done any empirical estimates of marginal value himself. So you're asking him to make judgments on facts that you're just throwing at him and he doesn't have any personal knowledge of the number based on hands-on practices of these particular games that you're proposing to him.

MR. OLSON: Well, he has --

COMMISSIONER ARGETSINGER: Are you objecting to the line of questioning or a specific question?

MS. MADIGAN: I'm objecting to the line of questioning and the his questioning other --

COMMISSIONER ARGETSINGER: Well, it is going on a little long but I know where you're going and don't make it so long.

MR. OLSON: We're just about done and I appreciate your indulgence, Commissioner Argetsinger.

BY MR. OLSON:

Q So, let me just proceed with the earlier

line of questioning.

So, baseball games on WTBS were typically games for most people in the country that were played by an out-of-town team, right?

A I -- give me that question again, I'm sorry.

Q If you lived in San Francisco and you're thinking about the Braves games that are shown on WTBS, in the typical case it's going to be a game between two out-of-town teams, correct?

A Yes, I believe that would be correct.

Q Okay. But it can happen that it --

CHAIRMAN AGUERO: Could it be Atlanta Braves against San Francisco in Atlanta and then had the home team in San Francisco?

MR. OLSON: Right.

BY MR. OLSON:

Q But you might have access in Chairman Aguero's example, you might have access to that same game by another means, right?

A Perhaps, yes.

Q Okay. Is it fair to say that the additional increment of values that is added to a cable operator's package of sports programming offered on network stations, local services such as Home Team

Sports, TNT, ESPN and other channels is only marginally increased by the addition of super station sports?

A I don't know what you mean by marginally increased. It would be increased and it's increased at the margin. But the total value of that sports package could be enormous and the marginal increase provided by the sports programming on the super station could still be substantial even though incremental units offered are going to be of lower and lower marginal value.

Q And it's fair to say that the sports programming shown on, say, super station WTBS is coming in on top of lots of other sports programming that's already there?

A Certainly but so are all the movies and so are all the syndicated programs, and so is everything else. I mean, there are large sources of video information, reading matter, everything else. All of this is at the margin and the interesting question is what is the relative valuation of one to the other.

Q I appreciate that, Doctor Crandall. Thank you.

Let me turn to another topic. Actually,

let me follow up just very briefly. Suppose that a cable operator doesn't have a local public TV station, all right?

A Okay.

Q And suppose that the only way he can bring Sesame Street and MacNeil-Lehrer, and Masterpiece Theater into his subscribers homes is by pulling in a distant TV station.

A Yes.

Q That's very high value to the cable operator, don't you think?

A I have no idea. I think one would have to ask him that question. The mere fact that he doesn't have something available in his local market doesn't necessarily mean that it is of high value relative to something else.

Q But, and you have no life experience suggesting to you that making Sesame Street available to parents with young children is of value?

A I -- I am sure that Sesame Street is of substantial value to some parents. The question is what is the value of that PBS signal and the components of that signal to the cable operator in selling cable television services.

Q Well, I understand. Let me ask you

another couple of questions on a separate topic.

Let's suppose that you had information from the real world right now that cable subscribers were willing to pay $30.00 to see one of the kinds of programs typically shown on one of the distant stations. For example, let's take a Mets game that's shown on WWOR. Suppose that we took a Mets game like any other, nothing special about it, and it turned out you were able to sell that to cable subscribers on a pay-per-view basis for $30.00. Would that fact be relevant to you in assessing the value of Mets games of that kind to cable operators? When carried on a distant signal?

A It might be. I don't know where the -- what kind of evidence it is, whether it -- how many subscribers are willing to pay, how well the evidence was -- was -- how well the information was obtained. There's a lot of things I'd need to know about. It could be, certainly. I wouldn't throw it out as a piece of information, no.

Q But assume that you found that, let's say, 100,000 people were willing to pay $30.00 to see that same Mets game that other people were seeing on a distant signal. That would be, obviously, not a total guideline to this Tribunal but it would be a useful

piece of data, wouldn't it?

A Depends on how it was obtain. What is-- what's this -- what kind of information are we talking about?

A Suppose we are talking about information about the number of people who subscribe to pay-per-view events, information that is widely published in the industry and, I believe, relied on?

A I would certainly think that information about the -- the viewer -- subscriber response to pay-per-view would be useful information.

Q If it were the same kind of programming that's shown on distant signals, it could be of value to this Tribunal in looking at the value of those distant signals, right?

A Yes, carefully interpreted but yes.

Q Thank you.

I want to close, Doctor Crandall, by just talking a little bit about your boxing example that you discussed on page 15 and 16 of your testimony. Do you recall that example?

A Yes.

Q Now, that was a hypothetical example, right?

A Yes, I've just told you I don't know

anything about boxing. I don't know why I chose it but it was clearly hypothetical.

Q All right. Now, I want to pose another hypothetical to you and I want you to accept the following facts as true. Again, let's suppose that we're talking about a cable operator who does not have a local public TV station, all right?

A Okay.

Q And suppose that similar, to your boxing example, the cable operator figured out that because there are a lot of parents of young children in his community, that by making Sesame Street and Reading Rainbow, and Mr. Roger's Neighborhood, and 3-2-1 Contact, and other public TV children's programs available to his subscribers, that he could get a 10 percent increase in his subscribers.

Now, let's suppose that the ratings for those shows were not very high because the parents didn't always fill out the diaries when their kids were watching those programs. Nevertheless, that example is parallel to your boxing example, isn't it?

A Certainly.

Q And suppose that a cable operator did have a local public TV station but he was aware that there was a distant public TV station that offered more

classical music performance, that offered more drama performance, offered more opera, offered more country music, than the local station did. And suppose that the cable operator determined that by adding that distant public TV station, as in your boxing example, he could get 10 percent more subscribers. Again, that hypothetical is precisely parallel to your boxing example, right?

A Yes.

MR. OLSON: I have no further questions. Thank you very much.

CHAIRMAN AGUERO: Thank you, Mr. Olson. Ms. Madigan, redirect?

MS. MADIGAN: Could I ask the Tribunal's indulgence for about one to two minutes consulting with my colleagues?

CHAIRMAN AGUERO: Yes, five minute recess.

MS. MADIGAN: Thank you.

CHAIRMAN AGUERO: Five minute recess. Thank you very much.

(Whereupon, at 2:24 p.m. a recess until 2:42 p.m.)

CHAIRMAN AGUERO: Proceed.

MS. MADIGAN: Thank you. I'll just be a few minutes.

REDIRECT EXAMINATION

BY MS. MADIGAN:

Q Doctor Crandall, if I could, this morning Mr. Lane took you through some exercises with respect to Figures 1 and 2 that you present in your testimony and had on charts before you. And, is it true that those figures were simply based on hypotheticals for the purposes of illustration?

A Certainly, yes.

Q Could we ask you to focus for a minute on the line of questioning Mr. Lane raised and ask you to go back to the chart and redraw those figures in response to the kinds of concerns Mr. Lane raises, and in particular, could I ask you to draw for us what you believe the Bortz survey wa attempting to measure and what information it provided us, provided the record?

A Well, as you recall in Mr. Lane's cross examination, he was pointing out that along these linear demand curves you could have different elasticity and therefore the relationship between total value and marketplace value could vary.

But let me just go back and perhaps characterize for you the criticism as Doctor Besen made of -- the criticism of the '83 BBC study and therefore implicitly of the '89 Bortz study, which was

that you can't tell much from total values because in extreme cases such as the difference between diamonds and water, which is a classic example of the economics literature to show you the difference between marginal value and total value, that an estimate of the total value could be very misleading.

We know that water is a necessity. It is really very different from diamonds. Diamonds are used principally by consumers for jewelry for decorative purposes. The man from water, we know, is going to be very price inelastic. It's a necessity without which we expire. That makes it a very price insensitive at some point.

As a result, regardless of what it's price is and where you are long this curve, it is likely to be quite inelastic and as you get farther and farther up the price curve, price on this axis and quantity on this axis, it's likely to become more and more inelastic. And it may be sold at a subsidized rate by a municipal water authority at a relatively low price and therefore the total marketplace value down here would be only a small fraction of its total value, this entire area in here.

For diamonds, exactly the opposite ought to be the case. It's a luxury item. It's highly

price sensitive because it's highly income sensitive and their related. And the demand for diamonds -- this is water here and this is diamonds here -- the demand for diamonds is likely to be quite price sensitive and therefore at whatever market price, the relationship of marketplace value -- this area here -- the total value -- this area in here -- is likely to be quite different. Now, if you had information on the total value of diamonds sold and the total value of water, it would give you certainly misleading information on the relationship to marketplace values. And that's the reason why that example is chosen. It's chosen to illustrate the difference between marginal value and total value in the economic literature and that's the reason why, quite naturally, Doctor Besen lent to it.

Now, if we go to popular appeal sports programming of the type which is -- we're talking about in this proceeding and ask ourselves, what is it that the Bortz survey is getting at. Well, what it's getting at is a cross program types -- and let me just put sports here and movies here. And syndication here.

It is getting a measure of total value and whatever the -- this demand curve is, the -- what it

is estimating is something like this, may not be linear, could be linear. But what it is measuring is this total area in here which is total value. This is the demand curve. It could be curval linear, it could be constant elasticity, it could be linear, it could be whatever, but what is important is that it is measuring this total value. And the two I've drawn them this way in terms of relative size, I'm probably off a little bit, because the Bortz survey comes out with relatively similar values to the total value of sports and movies, and syndication, as I recall, was perhaps half the value of sports and movies.

So, the only -- the only question in terms of the relevance of this measure is whether the relationship among these shaded areas is about the same as the relationship among these cross hatched areas that would exist in a marketplace.

Now, as I mention in my testimony, what-- what one needs to know for -- for this -- to reach a judgment on this question is what the elasticity of this demand is. And unlike diamond versus water, one would expect that the demand elasticities for various types of mass appeal programming would be relatively similar. It would have to have rather strong evidence that the -- that the elasticities are very different

for this to provide totally misleading information.

The -- the elasticities of demand could be quite similar even though the location of these demand curves are quite different. And, frankly, the reason perhaps, this is just speculation on my part, why you get a lower total value of syndication is what you're dealing is -- with it is programs that have been churned much more than perhaps sports, live sports or movies. But even though the total value may be less, it is likely that the elasticities of demands across these particular types of programming are going to be relatively similar, just as I mentioned in -- in response to counsel's question about the demand for automobiles. The demand -- the price elasticity's demand for durable goods, as we know and it's been studied rather extensively, is -- are relatively similar.

Also, the price elasticities of demand are likely to be the same over time even as relative prices change. When we get estimate of automobile demand over the last 25 or 30 years, we find that those elasticities are relatively the same across studies. They're getting better and more precise even though the relative price of automobiles has changed over the years. So that the mere fact that relative

price has change doesn't invalidate previous estimates of the elasticities of demand.

Q So, Doctor Crandall, in the final analysis, do you believe Doctor Besen's criticisms provide a basis for discounting the estimates of relative total value provided by the Bortz study?

A No.

Q Okay, thank you.

CHAIRMAN AGUERO: Does the Commission have an questions?

Thank you, Mr. Crandall.

THE WITNESS: Thank you Mr. Chairman.

(The witness was excused.)

CHAIRMAN AGUERO: Do you have the witness here?

MR. GARRETT: Yes, we do.

CHAIRMAN AGUERO: Okay.

MR. GARRETT: Ready to go.

MS. MADIGAN: With the Court's indulgence again, our witness has stepped out in the hall for a moment.

COMMISSIONER ARGETSINGER: We know what happens, people step out in the hall and they don't come back.

MS. MADIGAN: We think he's still here.

(Whereupon, at 2:50 p.m. off the record until 2:52 p.m.)

CHAIRMAN AGUERO: Welcome, to the Tribunal.

THE WITNESS: I'm sorry for being missing.

CHAIRMAN AGUERO: Could we continue with Doctor Leonard Reid on the Joint Sports Claimants.

Mr. Reid, would you stand up, please.

Whereupon,

LEONARD N. REID

was called as a witness by Counsel for the Joint Sports Claimants, and having been first duly sworn, assumed the witness stand, was examined and testified as follows:

MR. GARRETT: Ms. Madigan will do the direct examination, Mr. Chairman.

CHAIRMAN AGUERO: Ms. Madigan, would you please?

MS. MADIGAN: Thank you.

CHAIRMAN AGUERO: Thank you.

DIRECT EXAMINATION

BY MS. MADIGAN:

Q Professor Reid, could you state your name and current business address for the record, please?

A My name is Leonard N. Reid. My current

business address is the College of Journalism and Mass Communications, University of Georgia, Athens, Georgia 30602.

Q Thank you. And you are currently employed, then, at the University of Georgia?

A Yes, I am.

Q And in what capacity are you so employed?

A I am a professor of Journalism and Mass Communication and the academic head of the Department of Advertising.

Q And how long have you been on the faculty of the University of Georgia?

A Eleven years.

Q I see. Could you describe briefly your responsibilities in your current position at the University of Georgia?

A I have three areas of responsibility. As academic department head, I am responsible for the administration of the department, 14 faculty, 2 secretaries, and the programs involvement with the administration of the college, as an executive member of that committee. I teach classes and I am responsible for being productive in the area of research, that is, publishing articles, writing books.

Q I see. And could you describe briefly the

classes which you teach?

A I teach in two areas. I teach advertising management which deals with managerial issues related to advertising such as the use of research data in those managerial decisions related to budget copy, media placement, and evaluation of advertising effectiveness. I teach classes in research methods that deal with such things as the design of research studies, different methods of data collection, and different types of data collection techniques including experimentation, surveys, diaries, constant sums, content analysis, and so forth.

Q Thank you. Could I ask you to refer for the moment to the rèsumè attached at the end of the document submitted as part of Joint Sports Claimant's direct case at Tab G. The document is entitled, The Testimony of Doctor Leonard N. Reid, and the rèsumè, I think, begins on the second page?

A Yes.

Q Is this your rèsumè?

A Yes, it is.

Q And is this rèsumè accurate and correct?

A It's accurate except there's probably one addition that will -- I will add when I get back to Athens. I was recently appointed as an Adjunct member

to the Institute of Behavioral Research at the University of Georgia which is a research group.

Q Thank you. Professor Reid, do you also do outside work as a consultant?

A Yes, I do. I -- I've been involved in consulting since around 1985 and in that capacity, I have been a research consultant for a number of large -- of large firms including Caterpillar Tractor Company, Henderson Advertising, Standard Telephone, Mensu's Department Store, BBD&O Atlanta, Ross Advertising.

Q BBD&O in Atlanta is?

A It's a -- it is the branch -- the southern branch -- I'll never remember the names but it's --

CHAIRMAN AGUERO: Barton --

THE WITNESS: Badd and Blah Blah, yes.

BY MS. MADIGAN:

Q Okay. And it's -- okay. What type of firm is that just for the record?

A It's an advertising agency.

Q Thank you. I'm sorry, you may have said this and I may have missed this. How long have you been doing this type of consulting?

A Since about 1985.

Q Thank you. Have you done any consulting

work for or related to the cable television industry outside of this proceeding?

A No, I haven't.

Q So, would you characterize yourself as an expert in the cable television industry?

A Not at all.

Q Okay, thank you. Could I refer you again to your rèsumè and ask you to describe briefly your work experience prior to joining the faculty at the University of Georgia?

A All right. I came to the University of Georgia from Michigan State University. Before that, I taught at Arizona State University in the Business School, and before that I was a graduate student at the University of Illinois.

Q I see. And could you please briefly describe your educational background for the record?

A I have a Ph.D. in Communication Research from the Institute of Communication Research at the University of Illinois. I have a Masters in Advertising from the University of Illinois and a Bachelors Degree in Business from Virginia Commonwealth University.

Q Thank you. Professor Reid, your rèsumè lists several articles here that appear to have been

authored or co-authored by you, is that correct?

A Yes.

Q Could you briefly describe the nature of these various publications?

A Uh, well, as a -- as a professor of the-- this is an active vitae and the articles listed are studies or literature reviews, conceptual pieces that I have done and published in marketing, advertising and communications journals which refereed. They deal with a wide range of topics, mostly dealing with the process effects of advertising, consumer effects, et cetera. They have -- I've employed a wide range of methods from experimentation to surveys, to qualitative observations, et cetera.

Q As part of the work represented by these publications?

A Yes.

Q Thank you. And have you received any awards or grants, or public recognition for your research in this field?

A I've received a number of grants over the course of my career from different universities and outside sources. In terms of public recognition, I guess I have received a -- years ago a Young Scholar Award for teaching a scholarship at Michigan State

University. I was cited as a superior teacher at the University of Georgia. And in a number of objective articles that have looked at people's research productivity, I have been cited as a productive research in the area of marketing, advertising and mass communication.

Q Thank you. And could you just briefly describe some other professional or scholarly activities which you have been engaged if we haven't touched on them already?

A Well, I have authored -- co-authored an introductory advertising textbook that is widely used. I noticed it at the George Washington University book store the other day when I was here. I published a number of -- given a number of conference papers at various things. For four years, up until last December, I was the editor of the Journal of Advertising which is the main research publication of the American Academy of Advertising. And I have served on the editorial review board of current issues in Research and Advertising, am on the editorial review board of the Journal of Advertising now and serve as an ad hoc reviewer for a number of journals and professional organizations.

Q Thank you. Professor Reid, are you

familiar with the constant sum survey technique?

A Yes, I am familiar with the constant sum in the sense that I teach students about it as a scaling technique in my research methods class as one alternative. And I have employed it in several studies.

Q Are you also familiar with the diary method of data collection?

A I am familiar with the diary method of data collection in the same capacity, as a method of data collection that is an alternative for researcher to use in various decision making processes.

Q Just a clarifying question, then do you teach -- do any of your course which you teach touch upon the subject of diary methods of data collection?

A They touch upon it in a conceptual sense, what it is, how it's operationalized, et cetera, and alternative to that. And of course, we talk about, in classes, we talk about data that is generated from various types of method of data collection to make managerial decisions.

Q I see. Have you, yourself, ever employed the diary method of data collection in your work?

A No, I haven't.

Q I see.

MS. MADIGAN: The witness is now open for Voir Dire.

CHAIRMAN AGUERO: Mr. Lane?

VOIR DIRE EXAMINATION

BY MR. LANE:

Q Professor Reid, could you point out which articles in your rèsumè employ the constant sum technique?

A All right. On the fourth page there is an article entitled Another Look at the **Decative Female Model, and below that, which is in current issued in Research in Advertising, below that is one entitled, Effective Age of Models in **Put Ads in Evaluation of Product and Sponsor**. On the fifth page, this one deals with Direct -- Decorative Models in the Reshift of Magazine Ads. And on the seventh page that deals with published conference papers, there's one entitled, Response of Why Consumer to Integrate Advertising with Socially Consumed Product.

Q And you've indicated --

A I'm sorry.

Q Do any of your articles deal with diary?

A No, I have never published anything or, as I said, never used a diary in any of my research.

MR. LANE: Those are all the questions I

have, Mr. Chairman.

CHAIRMAN AGUERO: NAB?

MR. STEWART: No.

CHAIRMAN AGUERO: Music?

MR. LINCOFF: Music has no questions on Voir Dire.

CHAIRMAN AGUERO: PBS?

MR. OLSON: Just a few questions, Mr. Chairman.

CHAIRMAN AGUERO: Do you want to move here?

MR. OLSON: I can just sit here. That will be fine.

CHAIRMAN AGUERO: Okay. All right.

CHAIRMAN AGUERO: Can you hear?

MR. OLSON: Actually, it would probably be easier if I could sit here. Okay, thank you.

VOIR DIRE EXAMINATION

BY MR. OLSON:

Q Doctor Reid, we spoke before. I'm Tom Olson. I'm one of the lawyers for the Public Television Claimants. I just listened to your credentials which are very impressive. I wanted to just clarify a could of things. Do you consider yourself to be an expert in survey research?

A I consider myself to be knowledgeable in the area of survey research.

Q Do you consider yourself an expert?

A I would consider myself an expert.

Q Okay. Are there certain generally accepted principles that apply to survey research?

A Yes, I think that's --

Q And are those set forth in any treatises or other books?

A Oh, there are numerous books that deal with general research methods, methods of data collection and even specifically survey research.

Q Could you list for me specifically --

MS. MADIGAN: May I object for a second. I think this goes to the substance of the testimony and there will be ample opportunity to question the witness on these subjects. It doesn't seem to me it goes to the question of Voir Dire, although the Tribunal --

MR. OLSON: Certainly, as I understand--

CHAIRMAN AGUERO: Go ahead.

MR. OLSON: Pardon me. I didn't mean to interrupt you.

MS. MADIGAN: I'm sorry. No, I'm sorry.

MR. OLSON: Mr. Chairman, as I understand

the purpose of Voir Dire, it is to test a witness' knowledge of a particular field and I would think that a witness' knowledge of the leading treatises in his field would certainly be an appropriate subject for Voir Dire.

CHAIRMAN AGUERO: Counsel?

MS. MADIGAN: May I consult briefly for a second with co-counsel?

CHAIRMAN AGUERO: Yes, of course.

MS. MADIGAN: Thank you.

Mr. Chairman and Commissioners, we'll withdraw the objection for the time being to see how far this goes. Thank you,.

CHAIRMAN AGUERO: Thank you very much.

Mr. Reid, would you please answer?

THE WITNESS: Could you repeat.

BY MR. OLSON:

Q The question is, could you identify for me what you believe to be, say, the four or five most respected, most authoritative treatises or other books discussing principles of survey research?

A Well, one I -- I have cited in my testimony by Settle and Alrich, there are others that have been published. Probably one of the best known--some of the best knowns, and I don't remember the

exact title, were by a guy names Robert Ferber.

Q Robert?

A Ferber.

Q F-E-R-B-E-R?

A Yes. He's no longer at Listing. And Seymour Sudman.

Q Seymour?

A Sudman.

Q How's that spelled?

A S-U-D-M-A-N, I believe.

Q Yes.

A And there have been others in the area of sociology that I -- if my memory serves me correctly, I can call. There's one by a person by the name of Selitz, S-E-L-I-T-Z.

Q And that deals with techniques of survey research?

A That deals with techniques of survey research. And as a matter of a fact, most of the books that I have cited deal with that particular approach to data collection --

Q I wonder if you could -- pardon me. I wonder if you could take a look at the references that start at page 17 of your testimony. And I certainly don't want to go through the entire list but if there

are three or four other treatises on that list that you consider to be particularly authoritative and respected that you've not already mentioned, I'd be grateful if you could identify them for me.

A All right, well, the second one, Aldrich and Settle, Survey Research Handbook, is one of the more recent ones that I'm familiar with. I believe it's now in it's second edition.

Q Yes.

A It's used in marketing departments and advertising departments around the country. If you go down and look at the Churchill book, Marketing Research, Mythological Foundations, it deals with survey research among other approaches to data collection. Green and Tall, Research for Marketing Decisions deals with survey methods.

Q Okay.

A Peterson, that's on page 18, deals with survey methods amongst other things.

Q And that's a generally respected and authoritative textbook?

A Right.

Q Okay.

A And there is, on page 19, the Tall and Hawkins text, Marketing Research Measurement and

Methods. Those are general marketing research textbooks, some popular and --

Q Does that complete your list of the treatises or textbooks that are listed in your references that you believe to be particularly respected and authoritative?

A These are -- the references that I have referred to are to simply to illustrative purposes, they are certainly not exhaustive of the literature of marketing research or of survey research or experimentational content analysis, or --

Q I understand, but all the ones that you've identified are well respected and authoritative?

A Yes.

Q Okay. Now, I wonder if you could briefly mention to me the names of some of the survey research companies that you've worked with over your career, and in particular those that you believe to be particularly well respected companies?

A Survey research companies?

Q Right.

A Well, most companies -- most companies, I suspect, do a number of types of research, not just -- not always survey research. I have worked with the Standard Telephone Company.

Q The Standard Telephone?

A Telephone Company. That's in Georgia, and we have used the Survey Research Center at the University of Georgia to collect data. I have worked with Caterpillar Tractor Company in conducting consumer satisfaction studies which used a number of contractors to collect that data. Ross Advertising--

Q I'm sorry, Boss?

A Ross.

Q R-O-S-S?

A R-O-S-S. Is an advertizing agency that is one of the agencies that represent -- for Caterpillar.

Q Have you ever heard of the Survey Research Institute of the University of Michigan?

A Yes.

Q Is that a respected center for opinion research?

A Yes, it is.

Q Is there also one at the University of Chicago? The National something?

A I do not -- I can't say that for certain that there is.

Q Are there any other research departments or organizations affiliated with universities besides

the one at Michigan with which you're familiar

A Michigan is probably the most popular one but there is one at the University of Illinois, Bureau of Business and Economic Research. There's one at the University of Georgia. When I was at Michigan State, there was a Bureau of Economic -- Business and Economic Research.

Q Any others that come to your mind?

A Not right off the top of my head but most universities do have that as part of their research arm, some sort of research institute.

Q Let me go back for just one moment to the treatises. Are you familiar with a book by Shuman and Presser?

A I've heard of it.

Q Is that a respected treatise?

A I have not read the book. Shuman is a well respected -- well respected researcher in the area of public opinion research and I believe he's associated with the University of Michigan.

MR. OLSON: That's all I have. Thank you very much.

CHAIRMAN AGUERO: Devotionals?

DEVOTIONAL CLAIMANTS: No questions.

CHAIRMAN AGUERO: Ms. Madigan?

MS. MADIGAN: Thank you.

REDIRECT EXAMINATION

BY MS. MADIGAN:

Q Professor Reid, when were you first contacted in connection with this proceeding?

A I was contacted by Arnold & Porter in 1988. And at that time, I was asked to look at the survey design, the question design, of the constant sum instrument that was used in -- at that time by BBC Bortz, or was it Brown, Bortz and Cottington, I think was the firm. I was asked also to read the 1983 CRT determination proceedings in light of the concerns that they had with the constant sum technique and to make suggestions about the design of that question in relationship to those concerns.

Q And you're speaking with reference to a particular question that you said, the, I think you said, the constant sum question?

A The constant sum question, right.

Q Thank you. Had you ever worked for Bortz and Company or BBC before?

A No, I hadn't. In fact, I'd never heard of them before.

Q Did you make any suggestions with respect to the design of the constant sum question or the

administration of that question in light of your review?

A Yes, I did. I made two suggestions. One, that rather than having people distribute percentage points over respondents -- distribute percentage points over the categories of programming, I suggested that they use a fixed sum, hypothetical budget to find this percentage point and have them allocate those percentage points over categories. And I also suggested that they collect the data closer to the actual year of interest.

Q Could you clarify for the record, they were allocating percentage points in the 1983 question, were they?

A Yes, they were allocating percentage points.

Q And they were percentage points of what?

A Value, I believe.

Q Okay, and the change that you proposed was what?

A The allocation of a fixed sum, zero to 100 percent budget, over the program categories.

Q I see. And did you make any other suggestions with respect to the design or administration of that question?

A No, it was totally focusing on that question.

Q I see. And you said something, I believe a few minutes earlier, about the timing of the administration of that question. Could you describe briefly what suggestion you made?

A I suggested that the data be collected as closely as possible to the year of interest.

Q I see. Now, you've outlined that you made two suggestions with respect to the design and administration of that question and I think the first thing you said was you proposed a change in the language of the question. And why did you propose the change in the language of that question?

A To make it more realistic. To make it more realistic in a sense that since the sample was cable operators, that they would actually allocate a fixed sum budget over the decision.

Q Okay. Was this in response to any concerns raised by the Tribunal?

A It was in response to the problem that was identified as one of behavioral problems.

Q I see. And with respect to the change in timing of administration of the question, why did you propose that change?

A That was to deal with the problem of recall.

Q The problem of recall?

A Recall, in terms of the respondent's ability to recall an event, something that had happened in the past.

Q Was this a concern that had been identified by the Tribunal in the 1983 proceeding?

A Yes, in my reading of the 1983 proceeding, the Tribunal determined that there were two problems with constant sum. That those problems related to recall and to actual behavior, what was measured.

Q I see. After you made these suggestions, is it your understanding that these suggestions were incorporated in the constant sum question included as part of the 1989 Bortz study?

A Yes, from my reading of that report, that is correct.

Q Thank you. Professor Reid, Joint Sports Claimants have submitted to the Tribunal a document which I think I mentioned before entitled, Testimony of Doctor Leonard Reid before the Copyright Royalty Tribunal, which appears at Tab G. Do you have a copy of that document with you?

A Yes, I do.

Q And is this your testimony?

A Yes.

Q And is it accurate or would you like to make any changes?

A It's accurate.

Q Thank you. In addition, Professor Reid, the Joint Sports Claimants have submitted to the Tribunal a document entitled, Use of the Constant Sum Measure and Nielsen Audience Data in Cable Royalty Distribution Proceedings which is identified as Sports Exhibit 2. Do you have a copy of that exhibit before you?

A Yes, I do.

Q And is this part of your testimony?

A Yes, it is.

Q And is this accurate?

A I believe it is.

Q Would you like to make any changes to it at this time?

A Not that I know of.

Q Thank you. Could you just briefly describe each of these two documents for the record?

A The testimony is a one-page summary my qualifications and exactly what it is that I'm going to testify about as asked by our recorder. And it

refers to this document that contains my views on issues related to the constant sum.

Q Refers to this document, this document being?

A Use of the Constant Sum Measure in the Nielsen Audience Data in Cable Award and Distribution Proceedings.

Q Okay. And could you describe briefly Sports Exhibit 2, the use of the Constant Sum Measure in Nielsen Audience Data Report which you mentioned?

A This is a summary of -- which lays what my purpose is in writing this document. It reviews the problems as expressed by the Tribunal in its '83 proceedings. It states the purpose of my testimony. It makes some summary statements about the constant sum. It spends some time dealing with the constant sum, its character, what it is. It then has a section that deals with two studies that have compared the constant sum in relation to other scaling techniques. And it provides two illustrative examples that are in the public -- public domain as to how the constant sum is applied in the industry. And it ends with some comments about the Tribunal's concerns with -- with the constant sum in relationship to diary based studies.

Q Okay. Professor Reid, just for the sake of clarity, I will use shorthand throughout the rest of my questioning and refer to Sports Exhibit 2 as "Your report."

A Okay.

Q Thank you. Professor Reid, could you describe in very general terms just what the constant sum survey technique is?

A The constant sum survey technique is a comparative scaling technique that is used in research situations -- used in research situations to -- to make relative judgments -- to measure relative judgments among a set of alternatives. Instead of alternatives being a group of objects that a particular researcher is interested in, those objects could be things, they could be activities, they could be ideas. The measure itself provides relative judgments among that alternative set and what the task -- the task itself asks the group of respondents to distribute some resource or some activity among these alternatives. The constant sum has a zero -- has a zero base which allows the use of sophisticated statistical techniques. It avoids problems of yea saying, nay saying "halo effects," so they're referred to in the literature, and it overcomes the problems

that's been identified as psychological distance because it uses numerical values on a fixed sum, usually from zero to 100, zero to 10, in the allocation technique itself.

In practice, in the industry, it has been used for such things, and I'm speaking to -- the marketing industry, it's been used for ad testing, testing ideas, testing execution of ads. It has been used constant testing -- testing message strategy or testing product ideas. It has been used in price sensitivity studies to gauge what people would pay for various things. It has been used in simulated shopping situations where people are asked to make decisions about shopping. It's been used in segmentation studies to see where different groups of people fall within a relationship of attributes to attributes or objects.

The point is, that it is used in a decisional sense when people have to make choices about things. One of the beauties of it is that it approximates how we think and make judgments about a number of things that we do when we buy, when we allocate our time, et cetera, in that regard.

Q Professor Reid, how long has the constant sum survey technique been around?

A Well, the constant sum technique was introduced to the marketing literature -- is usually attributed to two people, a fellow by the name of Gilford who wrote a book in 1954 and also to Torgetsen who wrote another book in 1958. They were both psychologists and these people, if you look at the literature, some books trace the roots of the constant sum back to that. Over time, it has been used both by academics in conducting their research and by the professionals in the marketing advertising research community. I would describe the constant sum as just one of the many scaling techniques or ways people get at what people think, what they do, how they behave, et cetera.

Q Could I refer you to page 9 of your report. I'll give you a moment to find the page.

A Yes.

Q There you mention two different studies which looked at the constant sum survey technique. Could you identify those two studies for the record?

A Yes, they're two studies that -- that are in the literature, the academic literature, that have compared the constant sum scaling technique in relationship to other commonly used scaling techniques. One, the first was published in 1986 by

a fellow names Joel Axelrod. He was publishing the Journal of Advertising and Research and it was entitled, Attitude and Measures that Predict a Purchase. The second one was published in 1979 in an issue of The Journal of Marketing. The authors were Russell Haley and Peter Case, and the title was, Testing Thirteen Attitude Scales for Agreement and Brand Differentiations.

Q Thank you. Could you describe the Axelrod study, the first study you mentioned, very briefly, for the Tribunal?

A The Axelrod study compared ten different scales, rating scales. And one of these rating scales, of course, was constant sum. And what Axelrod was attempting to do was to look at the sensitivity of the ten scales, and what I mean by sensitivity, their ability to detect a change in a person's response, to make sure that it is measuring what it is that they were interested in measuring. The other -- the second point of the study was to look at the stability of the scale. And that, basically, was how stable was response in time 1 in time 2 over time. The stability of the scale, sometimes referred to in the literature as reliability. Something has reliability when it produces the same results over and

over.

The third point of the study was to look at the predictive power, or the predictiveness of these ten scales relative to people's product usage and that. In carrying out the study, there were multiple samples of housewives, or females, involved in each phase of the study. In the first phase, the sensitivity stage, all of the scales, I believe with the exception of second brand awareness and second brand recall, proved to be reasonable stable. With that, Axelrod proceeded to the second stage of the -- of the research which looked at the stability of the measures over time. And he did this by having -- having a sample -- a sample of housewives respond to the scales in terms of the products, their likability for the products, and then three weeks later, look at -- ask them about their brand usage in that. And what he did at that point was to split the sample in half. What I mean by that, he took half of the women that participated in this, built predictor indexes and used that to predict what distribution would be, what people would do in the second half of the sample. And what he found is that certain scales, including the constant sum, had stability over time. That is, they measured what people -- what people said they were

going to do and what they did.

In the third stage, he looked at the predictiveness of the -- of the measures in relationship to what people said they would do and how they actually behaved in the sense of buying products. He looked at this both in short term, defined as three to five weeks, and long term, defined as five months. And basically what he found from this concluded was that the two scales that tended to have the best predictive power, and what I mean by predictive power is, concurrent validity. That there's a relationship between what people say they will do or the liking for a particular brand of product and how they actually behave. So it's correlation, correspondence between the two. And what he found is that the constant sum in first brand awareness, which is top of mind awareness, were the best two scales in terms of their predictiveness, the relationship in what people said and what they did. The constant sum, in both cases, was reported to be a superior -- superior predictor of repeat purchase. That is, repeat purchase from time 1 to time 2. The person buying the same product. Whereas first brand awareness tended to be the best predictor of switching behavior.

Q Could you explain how Axelrod's study,

which focused on, I believe, consumer brand preferences and, correct me if I'm wrong, is at all relevant to a study that measures the value cable operators would place on different types of programming?

A Well, in the sense that the constant sum is a technique to measure people's relative judgments for objects -- brands of goods, products. It has been used for medical services, for media options, for travel decisions.

I would assume based on my knowledge of reading the Bortz survey that we are talking about objects defined as categories of programming.

Q And how did other researchers in this field interpret Axelrod's results and conclusions?

A They interpret the results, I think you mean exactly what I have attempted to state, that the constant sum scale and first brand awareness is a very good scale for measuring people's relative judgments about an alternative set, and then their sum relationship to behavior.

Q Professor, you also mentioned another study, I believe authored by Haley and Case? Could you briefly describe that study for us?

A Well, Haley and Case study, again, it was

published in 1969, compared 13 scales. The scales were tested among 630 housewives. And the purpose of the study was to measure the -- what is called convergent validity of the scales, and that simply means, are scales measuring the same thing? Which scales grouped together to measure the same response.

And the second part of the study was to determine which scales discriminated among brand usage, which is concurrent validity. That is somewhat similar, in fact, is similar to what Axelrod attempted to do. What's the relationship between what people said they would buy and what they bought. That's concurrent validity.

In the particular analyses, and there were comprehensive analyses, both qualitative and quantitative, Haley and Case concluded that different scales, clustered together, they measured different things. And that they had different responses distribution based on their structure, whether or not they would use verbal labels, whether or not they used the miracle labels, etc., in that.

He also tested them again for their concurrent validity, or predictive validity. And from that conclusion from the test itself, he found that five scales tended to discriminate and to be

sensitive, to be grouped in relationship to the responses, including the constant sum scale.

Q I see. And again, how would you explain the relevance of this study to a study measuring the value cable operators assign to different types of programming?

A In the same manner. In the sense that what the constant sum does as a comparative scale is to measure people's relative judgements across a choice situation. Objects, social objects.

Q Forgive me if I'm asking the same question again, but do these two studies, the Axelrod study and the Haley and Case study tell us anything about the constant sum survey technique's ability to measure actual behavior?

A They tell us that in these two research situations that the constant sum measure, the results they produced, are very consistent, are correlated very highly with what people actually do in a product usage situation.

Q Thank you. You have told us that the constant sum survey technique has been around for at least the past 30 years or so. Are you aware of whether any market research firms continue to use this survey technique?

A Well, again, if you look through the marketing research literature, and my citation list is certainly not at all exhaustive, the constant sum is commonly referred to as an alternative scaling technique. So it certainly finds its way into the academic literature.

It is used in the marketing research community as one type of scaling technique, one type of data collection measure that the marketing research community has at its disposal, just call it in its measurement bag, if you will.

To make sure that the academic literature is somewhat congruent with the practice, it has been my experience in talking with researchers at a number of research supplies companies that it's just as I described it, a somewhat accepted and often used measurement technique, given the context, the right situation.

Q Okay. Could I refer you now to page 13 of your report? And there, I believe you have outlined two recent examples where the constant sum survey technique has been employed. Is that correct?

A Yes.

Q Could you describe each of these examples briefly?

A Well, the examples are chosen, again, for illustrative purposes, and because they are in the public domain, since they are published. And I have a copy of one. The first example I used is something called the assessor model.

The assessor model was developed by, as I described in the testimony, by Alvin Silk and Glen Urban, who at that time were at MIT. They publish the method, the procedure, and some of the results in an article in Journal of Marketing Research, entitled, "Pretest market evaluation of new packaged goods, a model measure and methodology."

And what they attempted to do was to reduce the cost of product test by developing a system that could detect on a very small scale survey basis how people respond to the introduction of new products. Incorporated within this model, the measurement methodology was the constant sum -- was a form of constant sum survey, which they used in the model in a pretest situation before people were actually exposed to ads and stimuli.

And then used it, and what they did there is they had people value their relative set of products, or brands, whatever was being tested. And after several steps that exposed people to ads, if ads

were being tested for product ideas, they put people in a simulated shopping situation, had them respond. And then they followed up with a telephone interview, in which they used the constant sum, among other valuative scales, in order to find out what that relevant set is in term of opinion judgements, but now including not only those products, but the product that was being tested within the evaluation set.

They chose to use the constant sum technique for making these judgment differences because of its ability to be related to what people say they did in their actual behavior, tracing that back to actual life, I believe from that. And in practice, this model, the assessor model, has been used in thousands of product tests, and I know this because I talked to Alvin Silk about to this, and making sure I understood exactly what the model is.

The other example I use is Coca Cola's quantitative copy testing measurement technique, which is an instrument that they have developed for testing ads, ad executions, and for testing products. And what they do in that is, after exposure to ads, they ask people to allocate ten points over brands to predict the likelihood of purchase with behavioral intention.

And it has been used by Coke. As a matter of fact, I used it in two studies that I have done on a consulting basis.

CHAIRMAN AGUERO: What year?

THE WITNESS: What year was this developed?

CHAIRMAN AGUERO: Yes, developed.

THE WITNESS: Sir, I have -- I don't know when it was developed. It has been around in Coke for an awful long time.

CHAIRMAN AGUERO: I mean, they have been using this for many years? Coke has been using this for many years?

THE WITNESS: Yes. It's one of their instruments.

CHAIRMAN AGUERO: Thank you.

BY MS. MADIGAN:

Q Professor Reid, could I just ask a follow up question, when you say they have been using the Coca Cola QCT for many years, you mean they have been using the constant sum survey technique?

A As part of that, it's incorporated. One thing you have to realize is that the constant sum technique is simply a scaling technique for measuring people's judgments in a choice situation. It's one

way of getting at that.

It's incorporated in their QCT, just like it is incorporated in the assessor model, but for different purposes.

Q Professor Reid, are you aware that the Motion Picture Association, or MPAA, has submitted viewing studies in this proceeding based on the data gathered from Neilsen diaries?

A Yes. I am.

Q Now, you mentioned earlier that the tribunal had mentioned certain concerns about recall and behavior with respect to the 1983 BBC study, is that correct?

A Yes.

Q Do you believe these concerns with respect to recall and behavior have any application at all to diary based data?

A Well, let me say again that I am not an expert in cable television. But if there is a study that uses diary based measure of measuring people's response to something, what it amounts to is a reconstruction of self-reported behavior. That is, people are asked to recall something they do, that's what diary is.

The tribunal, in my reading of the 1983

proceedings, commented on the problem with the constant sum in terms of its behavioral measure, and in terms of recall. I do not believe that the diary based method of measurement of people's responses are immune to either recall or behavioral problems in that regard.

What you are doing, for instance, in the recall situation is you are asking people to reconstruct from memory, in this case, if we use it with viewing, we are asking them to reconstruct from memory their viewing behavior, and their problems with that. Any time you use self-reported data, we are dealing with human memory. And there are problems involved in that.

Secondly, diaries, and the way diaries are used in the Neilsen data, in the studies, are not direct measures of behavior. What they measure, is they measure people's self-report of viewing behavior. They do not measure actual viewing behavior. People are asked to recall their viewing behavior, and to keep a diary of that viewing behavior.

So to equate -- to equate diary measurement with direct viewing behavior is not entirely correct. That's why it seems to me from my knowledge of the industry, media planning, etc., that

the movement has been toward more mechanical devices of recording audience behavior to overcome the problems of memory, and this behavioral issue between diaries and people's viewing behavior.

Q Could I refer you to the bottom of page 15 of your report for a second? There, you appear to outline certain recall problems that might plague diary based data, such as the Neilsen diaries, is that correct?

A Yes.

Q Could you outline this briefly for the record?

A Well, again, you're asking people to reconstruct something. You're asking them to do that based on a number of conditions. The assumption is that a person can sit down and complete a diary as they watch TV. Even if a person is diligent in that, you are asking a person, unless they are doing it as they do, to reconstruct or recall something.

There are a number of problems that have been identified with that. Number one is the issue of involvement, your involvement. How involved is a viewer in this proceeding -- this procedure of completing a diary? They are not necessarily sometimes involved in television, they are doing other

things while they are watching television, etc.

And to ask them to do something that is atypical -- and it is, to complete a diary, in regard to that. So, I think the issue of involvement, your involvement is important here. I think if people felt they don't complete the diaries at a specific time, you have recall problems that are associated with -- people forget what programs they have watched while completing the diaries if they are not filled out completely at that time.

They forget who was watching television at a particular point in time. They make honest reporting mistakes in completing diaries. And in some cases, entries are made to reflect not what they have actually watched, but because the responses are socially desirable -- that is, "Gosh, someone wants to know what I watch. I think I had better put down that I watched the Civil War series rather than watching wrestling on WTBS," is an example in that sort of thing.

And another issue, given today's environment, the television environment, and what I know about the television environment and television, and read about this in the advertising context, is that it has changed so much. There are many more

options available on cable systems now. No longer are you -- are there three networks, there are 30 to 40 options that a person has in completing a diary.

So the task itself is much more complicated, it has become more complicated, and it has -- people have trouble, seem to have trouble perhaps keeping up with the number of stations and filling out diaries correctly. And all of these are related to recall problems that are involved.

Q Has research literature also identified recall problems associated with diary based data? That is, can you find this in the literature?

A Yes. Some of the studies -- some of the studies that -- or papers that I cite, chapters in books, identify some of the same problems in this, in Fletcher and Bower's book, media books such as Scissors and, I can't remember the other -- BUMBA, etc.

Q And these are all sources, or many of these are items which are attached to your testimony? Or references, I'm sorry, that are attached to your testimony?

A Yes.

Q Thank you. Finally, could I refer you to pages 14 and 15, the bottom of 14, turning over to the

top of 15, where you make reference to nonresponse errors associated with diary based data. Could you briefly describe what these errors entail?

A Well, nonresponse errors -- response errors deal with individual biases of problems. Nonresponse problems deal with sampling problems, that is, in the aggregate, when a sample is drawn.

It is my understanding that not only are there diaries -- the diaries, as they relate to Neilsen, and this type of data relate to response problems, but there is also nonresponse error introduced since, that there are people who do not complete, or do not participate in the diaries.

And from some of the sources that I have cited, some of my readings, the problem can be as much as 50 percent of those sampled to participate don't participate. And the question is, what type of error is introduced into the sample because of the differences between respondents and nonrespondents.

Some of the things that have been identified is that light viewers are different from heavy viewers in terms of their responses. There are differences along racial grounds, differences along -- in terms of gender, etc.

Q These nonresponse errors, or differences

in reporting rates, would these errors or differences affect the projectability of data generated by the sample used?

A Yes. They would, if there was a difference between the characteristics of those people who respond who respond and those people who don't respond. If that makes sense.

Q Yes. Thank you, Professor Reid. That's all we have for direct examination.

CHAIRMAN AGUERO: Thank you very much. Before we continue with the cross examination, we would like to have a minute recess.

(Whereupon, off the record from 3:43 p.m. until 3:55 p.m.)

CHAIRMAN AGUERO: Mr. Lane, do you have any idea for how long you are going to cross Mr. Reid, or do you not have any -- ?

MR. LANE: Maybe that's giving away your strategy.

CHAIRMAN AGUERO: Tomorrow we're going to have Roger Werner in the morning, and Dr. Reid in the afternoon.

MR. LANE: I'll try to make sure he doesn't have to stay over the weekend.

CHAIRMAN AGUERO: Okay. Go ahead, would

you please, Mr. Lane?

CROSS EXAMINATION

BY MR. LANE:

Q Mr. Reid, had you worked with Arnold & Porter before your assignment that led to the testimony you are providing before the tribunal right now?

A I was first contacted in 1988. That's the first contact I have had with them.

Q Excuse me?

A I was contacted by them in 1988, relative to the design of the constant sum instrument that was used in the study.

Q Had you worked with Arnold & Porter before that ever?

A No.

Q I would like to refer to page two of what I will call your testimony.

A Is that Exhibit D?

Q I don't know what it is. The one after Sports Exhibit 2, page two. Do you have that?

A Yes.

Q Is it true that a constant sum survey is a form of attitudinal survey?

A It is characterized sometimes as an

attitudinal survey.

Q Do you know how long the length of the interviews in the 1989 Joint Sports Claimant survey took with each respondent?

A I believe it took about ten minutes.

Q And you were the one who, as I understand it, established the fixed program budget addition to the question four?

A I suggested that, in consultation with the people from the research firm, and I don't know if I would take full credit for that, but that was my suggestion.

Q Did you -- were those your words, or was that just an interpretation of the -- an idea you had?

A I edited the question, and I'm sure some of my words are there, but that -- I did not write the question.

Q I'm just focusing on the words fixed program budget, which you quote at the bottom of page two. Are those your words, or someone else's words?

A Fixed program budget, I believe those would be my words.

Q Is there any other constant sum survey of which you are aware, in either the literature or your experience, that uses the words fixed program budget

as the allocation?

A Not that I'm aware of.

Q Now, in your mind, what were the respondent's thinking when they -- what were you intending that the respondents think of when they were asked question four?

A In my mind, the intent of the survey, as I understand it, or understood it at that point, was to measure the value of different types of products -- products -- firms categories for the retention and traction of cable subscribers. I would assume again, I'm not expert in the cable industry at all, that some -- individuals that are involved in program decisions would be more realistic to allocate a program budget over program categories in this choice situation.

Q Were they, in your judgment, looking to what has been referred to as an all or nothing approach, that is, they either took all the programming that was available, or none of it?

A I don't understand the question.

Q In your mind was that -- in your mind, when you helped to write question four, was it your intent that the respondents consider the programming available on the stations on an all or nothing basis?

A Well, it's my understanding that there

were categories of programs that have different types of non-distant signal, non-network programs that have been defined. And that, the task was to allocate the fixed sum budget from zero to 100 percent over those categories of programs.

Q Did you intend that the question elicit a response based on them taking the exact amount of programming available to them in 1989, in a particular category, or none of it? Or did you intend that they fill up the distant signals with programming however they chose?

A It is -- my understanding of the question, and the purpose, was to determine the value of these types of program categories to cable operators in 1989. And they were asked simply to allocate that budget across those seven programming categories.

Q How familiar would a respondent have to be with the thing, or the product being tested, to answer a constant sum survey?

A Well, in terms of the research process itself, it is the type of question -- the type of decisions that are involved in the design of that. I would assume that the person designing the study would have some knowledge of what the information knowledge base of respondents are in terms of the

categories, and that the working, etc., would be so the categories would make sense in terms of who the respondent sample would be.

Q But there is no -- so, are you assuming, what type of a level of knowledge about those categories are you assuming when you are drawing up the question?

A I would assume that in a hypothetical research instance that the group of respondents that one would choose, given the research situation, would be relevant to the question at hand, whether it's for cat food, automobiles, or whatever.

Q In the -- did you agree with the tribunal's assessment in the 1983 proceeding that there was a recall problem with collecting data in 19 -- I believe it was 1985, with respect to information about 1983?

A Yes.

Q Turning to page three of Exhibit 2, you set forth that the CRT's concern with the constant sum techniques is the relationship between constant sum survey results and actual behavior, correct? In the middle of the page, the purpose of the report?

A Oh, okay.

Q Is that the correct question to ask in a

constant sum survey situation?

A Yes. It can be the correct question, depending up the purpose of the research, and how the constant sum is used. It can be used to measure past behavior, it can be used to measure future behavior, or present behavior. The idea of using the constant sum is to make some relative judgment that could be related to behavior in some way.

Q And the bottom of page three and carrying over to page four, you list several reasons, which you state are reasons that constant sum technique is used in marketing research, correct?

A Yes.

Q Could those very same reasons be applied to any number of other marketing research techniques?

A Well, research techniques, if we are referring to scaling technique here as a method of data collection, these are generally points that are raised in favor of the constant sum techniques relative to other scaling techniques.

Q But you're not saying that the constant sum is the only technique that is simple in design and easy to use, are you?

A Certainly not the only one that is simple to use or easy to design.

Q And is it the only one whose measurement properties allow application of sophisticated statistical procedures?

A No. It's not. If it has properties of ratio measure, it allows sophisticated statistical techniques.

Q And if I went down with the other three, would your answers be the same?

A Different scaling techniques fall into different properties. These are the -- these are the reasons that are quite often attributed to the value of the constant sum technique. And again, studies -- the two studies that have been cited have compared various scaling techniques.

Q I would like to turn to page five of Exhibit 2. In -- at the bottom of the page you, and you testified this afternoon that constant sum is used in price sensitivity studies, in simulated shopping studies, do you see that?

A Yes.

Q Could you describe what you mean by price sensitivity studies?

A Well, price sensitivity study would be a study that would vary various prices for a good, and product. They would be manipulated, and a person

might be asked to allocate money, or budget for points for products based on different prices. That's price sensitivity. In a sense, to develop our relative bases of what people would be willing to pay for goods at different prices. It's a judgmental test, again.

Q And you -- in a price sensitivity study, you would have to, I take it, allow for some measurement of the various prices of the goods being studies, is that correct?

A I would say that that would be the case.

Q And would price also be a factor in simulated shopping studies?

A Not necessarily, but in a design of a study, a number of things could be manipulated as variables. Quite often there are advertising executions, sometimes at point of distribution, and variables -- price variables could be manipulated within the experiment.

Q On page six, right at the top of the page, you indicate that it has been used to study consumer preferences for branded goods, etc. Is the study of consumer preferences really the major use of the constant sum technique?

A It is one use of constant sum technique, evaluation preferences. As I have indicated in the

way it used by the QCT study, it is used for measuring behavioral intention. In some cases, such as it was used in the Bortz study is to measure what people would have done in those situations.

Q Well, in the QCT, if you turn to page 14 of Exhibit 2, that is -- am I reading this incorrectly, is that in the first full paragraph, the subjects are asked to allocate ten points among a set of soft drink brands. Is that preference for branded goods?

A In this particular case, you are asking someone to make an evaluative judgment. They are asking a person to describe in terms of his allocation points the likelihood of purchase.

Q And just above that, you say that the -- again, still on page 14, that the constant sum is designed to measure brand purchase likelihood, correct? Is that a preference for branded goods?

A Technically, that would be called behavioral intention.

Q What is the difference between behavioral intention and consumer preference?

A Preference might be a simple statement of these five products, which you prefer. Behavioral intention question may simply ask the person, given

the situation, how you intend to behave, or how do you behave? The way this is treated in the operationalization of the QCT is as a measure of purchasing likelihood, or behavioral intention.

Q And when you study consumer preferences, you are not looking for behavioral intentions?

A You study consumer preferences. The fact of the matter is what marketers are really concerned with, the bottom line is, they are concerned with market behavior. They want to know how various variables are going to affect what people do in the marketplace. They use preferences, they use attitude scales, they use opinion scales, they use a host of other variables including diary measurement in some cases, to some way approximate as a surrogate measure of predicting what people actually do.

Q Well, are preferences a surrogate for what people actually do?

A A preference has some relationship to a person's behavior. That is why it is incorporated in the assessor model.

Q I would like to turn back to page six of Exhibit 2, please. The -- could you describe for us what gain theory is?

A Gain theory, as I understand it, is a

situation where a group of respondents or individuals are asked to make decisions.

Q Decisions about what?

A Well, decisions about events, phenomena, policy decisions.

Q And they are asked to make decisions about, are they not, about how a sum would be divided among them?

A In some issues, the studies that I cite, as illustrated examples of the technique, the concept, the constant sum, is that individuals are asked to make allocation of some resource among alternatives, the choice judgments.

MR. LANE: Mr. Chairman, I would like at this time to have marked as Program Supplier's Exhibit 8-X, some pages from the reference James on page six of Exhibit 2 which, correct me if I'm wrong, Mr. Reid, but if you go back to page 17, or 18 --

(Whereupon, the above referred to document was marked as Program Supplier's Exhibit 8-X for identification.)

CHAIRMAN AGUERO: Page 18?

MR. LANE: Yes. That refers -- of Exhibit 2, that refers to James P., the Canadian National

Energy Program and Its Aftermath.

CHAIRMAN AGUERO: James P.?

MR. LANE: Is that the reference?

CHAIRMAN AGUERO: Yes. Canadian National Energy Program and Its Aftermath.

BY MR. LANE:

Q Is that the reference to which you were referring on page six of your testimony?

A Page 18?

Q Yes.

A And what is it again?

Q James P., the Canadian National Energy Program and Its Aftermath? Do you see that?

A Yes. I do.

Q And that's the reference -- is that the same reference to James on page six on your testimony?

A I believe it is.

Q Is there any other James listed in the bibliography attached here to Exhibit 2? I assume that's a last name, is it not?

A Yes. Everything is cited by the last name. As far as I know that is the only one.

Q Did you read this article in preparation for your testimony?

A I read over it.

Q And would you check the citation?

A May I have my own copy?

Q Mr. Reid, would you turn to page 176 of Exhibit 8-X?

A Would you give me just a moment to make sure that I didn't mis-cite this in some way? Page 70?

Q 1-7-6. Do you have that?

A Yes.

Q Now, in the right hand column of that page, do you see a reference that you have already underlined that you could either have a constant sum, it's right in the middle of the page, or a variable sum gain?

A Yes.

Q Now, would you read into the record the next sentence that appears right under that paragraph?

A "By consensus," is that the paragraph?

Q Yes.

A (Reads) By consensus the bargaining initiated by the NEP over economic rents is regarded as a variable sum gain. Simian observed that energy revenues that contributed over $15 million to the Alberta Heritage trust fund while --

Q I'll tell you, why don't we skip down, to

make this go a little quicker, to the last sentence of the paragraph?

A Okay, which starts, "Since the game is deemed to be -- "?

Q Yes.

A (Reads) -- variable sums, subsequent analysis focuses on interdependent choice as opposed to security levels, and middle paths in a constant sum gain.

Q So, this, at least the gain theory analysis here in this article, focused on a variable sum gain, did it not?

A I believe so.

Q Not a constant sum gain?

A Well, it's a variation of a constant sum method. There are different ways, and again, I introduced these articles on gain theory as well as I introduced the ones on psychology to make the point that the constant sum procedure or technique, is accepted in the academic community. It is applied not only to marketing, but also these other areas.

Q Is -- is -- when you state that, are you just referring to the -- to a scale that is somewhere between zero and 100, or zero and ten? Is that what you mean by the constant sum technique?

A I'm referring to the allocation of some resource of activity among an alternative in an alternative set, defined numerically as zero to 100 to zero to ten, zero to 50, zero to 1,000. Whatever the researcher deems the appropriate sign it is.

Q But is it the scale that is important? The use of the scale rather than a ranking, say?

A Well, it's not a ranking.

Q No, I'm saying in contrast to using a ranking, is the constant sum technique the important thing, the use of a scale?

A Oh, the idea of a constant sum, the conceptualization behind it, is just as I have stated, the allocation of points, or some numerical value over a choice situation.

Q The -- it's possible, is it not, to make a choice by ranking various products, for example, various things in your parlance?

A Absolutely.

Q And is the value of the constant sum that the measure it brings to such ranking is more refined than just saying, A is one, B is two?

A Rank order ranking usually refers to the ranking of some objects set along a dimension from one to five, or one to ten, whatever it would be. The

value in the constant sum is that it allows for finer diagnostic information, because it gives you an absolute measure of what the difference between one and two happens to be.

That difference between something ranked one by sample, and something ranked two by sample, could be very small, or it could be very large. That's the value of the constant sum. It divides that diagnostic information that allows these fine discriminations in choice criteria.

Q Well, I guess what I'm getting at is, is the constant sum technique the measurement scale itself? Is that -- is that what we mean by the constant sum technique, the measurement scale? Let's just stick with one to 100. I know there are other ones, but just for simplicity, is that what's involved with the constant sum technique?

A The constant sum technique, as I stated, is a scaling technique for measuring relative preferences among a choice set, in a research situation as defined by the researcher to apply to a particular researcher situation. It depends upon what the researcher is attempted to get at.

Q Is the constant sum part of the research situation the scale itself?

A The constant sum part of the research situation is a method of data collection that the researcher has deemed worthy of using in that particular situation. It is referred to as a scaling technique, or a rating technique. And it has various conceptual components underlying it.

Q And what are the conceptual components underlying it?

A Number one -- well one is that it can make this relative judgment of distance among alternative concepts, that it's not purely rank order, but it allows fine discrimination among choice alternatives. That is, there is a difference between a product that is rated one and two, rank order, and one that achieves a 50 percent rating and one that achieves a 20 percent rating. Everything below that is less.

That's different from a product that is ranked number one in the rating that achieves a 20 proportion, and one that achieves 18. I think most would agree that there is a difference between 15/20 and 20/18, and that's what I mean by diagnostic information.

Q Is -- is the thing that ties all these studies together on pages five and six of Exhibit 2 the fact that they use some sort of a scale measuring

either one to 100 or one to ten?

A The -- are you referring to -- ?

Q I'm referring to the last paragraph on page five, and going through, basically I guess all of page six, and just through the carryover paragraph to page seven. You cited a whole number of articles, or textbooks, of whatever, on these pages, have you not?

A Yes. Those are basically articles that have used the constant sum technique in marketing, consumer behavior and advertising situations, and also examples that have used the constant sum in psychology, anthropology, and gain theory.

Q Right, and the thing that ties all of those together -- I'm sorry, is the thing that ties all of those together that they all have some scale, either one to 100, one to ten, one to 1,000, whatever the scale is?

A The thing that ties them together is that the concept of constant sum -- is that individuals within these test situations and research situations, are asked to make some relative judgment about an alternative set, whatever they happen to be. In the case of consumer studies are the ones that I have cited, medical services, radio stations, travel

decisions, and the choice of -- in the context of anthropology, deities and gods.

COMMISSIONER ARGETSINGER: But is the scale something that is present in every one of these?

THE WITNESS: Present in every one of these? Not operationalized to the extent that it is in the Bortz study or in some of the other studies. There are variations of how the scale itself is operationalized, depending upon the wording, what resource of activity is being distributed, what the objects are that are being evaluated.

COMMISSIONER ARGETSINGER: Because when we started out these hearings, Mr. Lane was on something that I was going to ask right at the start, what is the essential element of a constant sum?

THE WITNESS: The essential element?

COMMISSIONER ARGETSINGER: Yes. And you gave a long paragraph, is the scale and the essential element -- is it an essential element?

THE WITNESS: Yes. It is.

COMMISSIONER ARGETSINGER: Is it one of the essential elements?

THE WITNESS: Scale in the sense that you are asking people to allocate some numerical value over a set of objects.

COMMISSIONER ARGETSINGER: And I gather there are some other things there, too?

THE WITNESS: It's a comparative scale.

COMMISSIONER ARGETSINGER: But we can say that is one element that runs throughout this?

THE WITNESS: Yes.

COMMISSIONER ARGETSINGER: I'm sorry, Mr. Lane.

MR. LANE: I'm glad you were able to clarify it. I was having the same problem.

BY MR. LANE:

Q Is a ranking a comparative scale of objects?

A Yes. I could be classed as a comparative scale.

Q So, what distinguishes a constant sum from a ranking?

A Well, can I give an -- use this to give an example?

Q Certainly.

A Perhaps that would help. Okay, this is simple for the point of illustration. Let's assume that we are talking about cat food, all right? Since I often have to buy cat food for my wife's two cats. All right? Cat's can't -- (laughter)

Obviously cats cannot express the liking for food, cat food. But they do eat various cat food, and as I observe, they are very finicky. So a person has to attribute from their behavior their liking for various types of cat foods. That is, my cats, my wife's cats, tend to eat beef and liver, all right?

And she has made a decision that they will get no fish, because it has too much ash content, all right? So, we can say beef and liver cat food. And I will apologize for my bad writing, all right?

Q At least you get everything on the page, unlike some of the people here. (laughter)

A Beef and liver. Beef and liver is a type of a cat food, and it is offered by a number of marketers and manufacturers, brands. All right? We have, for example, lets just call them A, B, C, D, E. All right?

I could ask the group of cat food owners to rank brands in terms their preference, or in terms of their likelihood that they are going to buy it in their next shopping situation. If I asked them on Thursday if they go shopping on Friday, I can ask them, I establish that they buy cat food, they have cats, beef, and liver, and pork, and I could ask them to rank all of the various brands.

And what I might find here is that rank brand A, we have this rank, and I do this with 100 cat food owners who buy their cats beef and liver. And what I find is that Brand A wins. It's tops, it's number one. And that a certain percentage of these individuals rank this as number one.

Well, what the constant sum gets at here, this is rank order, this is what is referred to as rank order, all right? And we have with these with each individual. What we don't know is what's the differences between each of these ranks.

Let's just say that this is -- geez, I buy this stuff, I should know -- Purina is number one, and what's the other?

Q Alpo?

A Alpo is number two, and you go down. Well, we really don't know, given this sample of people, what the difference is between Purina and Alpo in terms of what they prefer. We could ask these people, rather than ranking, rank orient them, we could ask them to allocate let's just say 100 points between these five brands of beef and liver cat food.

And what we might find in this distribution is that Purina comes out with 50 percent of the points, and as we move down Alpo comes out with

25 percent of the points, and the rest of the 50 points are distributed differently, all right?

So we have some idea in terms of relative judgment that Purina, within this sample of people, and if it has been drawn in projectable, is that it seems that beef and liver, the likelihood that it's two to one greater that the person is going to buy Purina over Alpo, all right?

That's the difference between this. We have got a relative numerical value here. Certainly they're rank ordered. Now, suppose for instance, let's change that. And let's say that Purina still comes out number one, but the allocation is 25 percent of 100 points. This Alpo becomes now 22. It's rank order, but we have an absolute zero, it could have gotten zero, it could have gotten all of the points.

But we can make this differentiation of three percentage points, by 25 percentage points. It gives us a greater idea that there is a wider gap in the likelihood these people will buy. That's why these are relative judgments. That's why I refer to the idea it gives you diagnostic information because of this absolute difference in the two.

It's different from a purely rank ordering procedure where you ask people to rank order things.

Because in rank order, what you get is one, two, three, four. What you don't get is the interval between this numerical values. And that's why -- that's why a scaling technique like the constant sum gives you greater value, because it allows you to make statements about the relative judgment among objects in an alternative set.

Is that -- ?

Q My question -- that's very helpful.

A Thank you.

Q Actually, I think I will put in as Exhibit 7, another study, another part, actually this is a textbook that you cited.

A Which one?

Q Marketing research, I guess by Cullen Harper.

A Looks like the 1987 edition.

Q And I have a -- just a copy of page, or a couple of pages from here, and it more or less replicates what you just put on the --

We are going have to take the Tom Olsen approach. You're just going to have to guess what the next exhibit number is.

MS. MADIGAN: May I ask what the -- in case we would like to refer to the context in which

the excerpt have been extracted?

CHAIRMAN AGUERO: Do you have the book, Mr. Lane?

MR. LANE: Let's see. I don't think I do. But I'll be happy to get it. I just -- in putting it in, if you'd like to read the context, I assume you have read the book before, you can tell me -- I just, I think on this page --

MS. MADIGAN: It is also possible you may not recall which page precedes the pages you have drawn, because he has referred to several textbooks. And it might be useful to refresh his memory and provide more accurate testimony if you could reference the entire textbook.

MR. LANE: If he needs help he can tell me, and then we can proceed from there. I don't have it with me.

CHAIRMAN AGUERO: You don't have it with you.

MR. LANE: I couldn't fit every textbook -- I'm sorry.

CHAIRMAN AGUERO: Is it possible for you to have it tomorrow?

MR. LANE: I think I have some very simple questions that go along with the cat food example.

COMMISSIONER ARGETSINGER: Can you go along with it a little bit?

MS. MADIGAN: Yes. If appears to be a trouble. Thank you.

BY MR. LANE:

Q And this -- this -- this was picked because it refers to quadratic comparisons, which is something that you referred to in your testimony, is it not?

A Yes.

Q And essentially on this page on the top, although we are not measuring cat food, they measured automobile characteristics, we have a rank order, correct?

A May I have time to read it?

Q Sure. (Pause) Have you had time to read it?

A Yes.

Q And, just looking at the top of the page, they have taken automobile characteristics which, I assume this is entirely hypothetical for textbook purposes, would you agree with that?

A I think so.

Q And they just ranked them arbitrarily, is that correct?

A Yes.

Q And then what they have done at the bottom is said, well, it's just what you explained to us up there. They have three groups, and they, "Look, so price was one, but in group C obviously price is of much more concern to that group than it is to group B," is it not?

A Yes.

Q Now, on this page, they ask the question, divide 100 points among characteristics listed. Is the only difference between that question and the question that you would ask to get the listing at the top of the page, instead of saying dividing 100 points among the characteristics, it would just say rank the characteristics?

A I would say it would --

Q I mean, it could have different wording, but essentially is that -- ?

A We could rank --

Q Okay. But didn't it say please divide, didn't they?

A That the constant sum. But it says, "Please rank." It would say, "Please rank the following characteristics, list these other things to reflect how important each characteristic is in the

selection of an automobile?"

Q Now, is the constant sum technique simply in this case adding -- using 100 points instead of ranking?

A In this case what it's doing is asking people to allocate a fixed sum over these alternatives in a choice situation.

Q I understand, but is that the difference, adding that 100 points, is that the difference between ranking and constant sum? Adding that to the question?

A Well, it's one of the primary differences.

Q Okay, what are other differences?

A Well, you are asking individuals within this group to make some value judgment relative to those points. In this particular case, the difference is you are asking the person rather than to rank, to divide points across these attributes.

Q But in all -- in all cases, I haven't checked this, and I assume they did it correctly, in all cases I assume group A, group B, and group C, the ranking would be the same as it is on the top of the page, correct?

A No. That's not true. Hold on a second. Yes, it does equate as true. Hypothetically.

Q It's a hypothetical. There's no question -- no one's questioning that. They -- but I assume they deliberately did that to attempt to show what the difference between ranking and constant sum is?

A They did that to show, as they state, doing this allows the researcher to approximate some interval scale value to the brands being considered. That is, you can determine what the distance is between the alternative sets. The point that I tried to make with my example.

So, an instance, let's take group A, and let's say that we are talking about very demographic groups, a target market. All right. We have target market one, defined demographically in terms of age. Let's say A ranks, let's just call them mature consumer segment. Let's call the other middle age consumer segment. Let's call C the youthful consumer segment.

And we can see that price turns out to be the most important attribute in all cases in buying an automobile. That makes sense to me, the way I buy cars, since cars cost a lot. But we find that the differences, in terms of price, in economy -- the economy is important, but is we look at the points the way that they distribute it, we have a five percent

difference, we have a two percent difference, and we have what -- ?

Q Fifty four?

A Fifty four percent difference.

Q No, 56, sorry.

A Whatever, 50 plus points. That says that the differences between price and economy, although they are ranked one and two in all these segments, have differences to each of these segments. Price is more important to the youthful group than it is to the older group.

That provides diagnostic information. It is gives us relative differences in this choice set.

Q And is that difference in the ability to do the diagnostics a result of adding the constant sum technique?

A That is the product of the constant sum technique. I believe that example was given because it is the product of the constant sum technique. It is what happened when these hypothetical consumers were asked to allocate 100 points across these attributes.

Q Are there any other differences in the research methodology that has to be used between, for example, ranking, or use of a constant sum technique?

A In terms of a research design?

Q Yes.

A I think the preceding decisions, obviously the researcher has an issue that he wants to get at, and that is determining which of these attributes are most important to the car buyer. So, in doing that, he has to formulate the -- he has to make some decisions about who to sample, these groups as I illustrate, what sort of method he is going to use, timing of data collection, all of those issues concerned with design.

And one of those is how he is going to get at this issue of which of these attributes are most important. And one can choose to use a ranking technique, one can choose to use the constant sum scaling technique. It is in some way congruent with the overall research design, or the issue one attempts to get at.

Q I'm sorry, but I am so dense, but -- all those things you just mentioned, would they differ? Let's just take the groups. If I were doing a pure ranking, would I have -- would I necessarily choose different groups?

A If I was interested in these three consumer segments.

Q Right. Let's assume -- let's assume you're interested in the three consumer segments that you have identified. If I were doing a ranking, would I choose the respondents differently from the way I would if I were doing a constant sum?

A Not necessarily.

Q Would -- what were some of the other -- in any of the other research design, research concerns, would I do anything different if I were doing a ranking -- if I were doing a constant sum instead of a ranking?

A I would assume, I'm making the assumption that the point of the study that's based on this is to measure the importance of these attributes to car buyers. The way I would get at that, that is, I could choose a number of measurement techniques to get at that. I could choose the ones I have defined as sample, decide who is going to do the interviewing for me, when it's going to be done, where it's going to be done, the type of instrument, the type of interviewing characteristic that I will select is one of my options, a number of measurement techniques.

I can choose the rank order techniques, which was done in the top half of the page, or I could choose the constant sum measure. I could also, let's

say that for hypothetical purposes, let's assume that we're not interested in three groups of consumers. We're only interested in this case in one of the markets, group A. To get at that issue, I could use the rank order, or I could simply use the constant sum among that subsection of the total car buying market.

The type of information again is that rather than having one, two, three, four, five, six, I'm going to have 35, 20, ten, three, two. They have the same properties as rank order, but there are going to be differences in the numerical values assigned to each of these attributes, so that I can make some relative statement about how more important one is than the other.

Q Let me try it this way, Mr. Reid, if I am going to do a constant sum instead of rank, and I have made that decision, that is, for whatever reason, I have just decided that first. Would I choose a different sample from the one if I had chosen ranking?

A Well, first of all, let me respond that a researcher -- most researchers, at least the ones I have known, would never say, "I am going to use a technique," and then impose it on a situation. The question drives the issue in all of the research decisions made before. And then it becomes, which

methods gives me the information, that gives me the best information, in the most price sensitive or economical way that I am looking for.

Q Well, I am not a researcher, so I don't pretend to do things in the right order. But I am asking you the question based on the assumption that I made a choice. The first thing I did. Because I am stupid, I don't know how to do research, but I have got the money to do this. And I am going to go ahead and do it.

So, I decide I am going to do a constant sum, and my only other choice was rank order. And I'm going to do it about automobile characteristics, and I want three groups, and it is mature, middle age, and youthful. Would I pick a sample differently because I chose the constant sum rather than ranking?

A You would pick the sample based on whether that sample is of interest to the issue that you're studying.

Q So is you answer, no, I wouldn't pick a different sample?

A I don't think so.

Q Okay. Would I pick a different set of interviewers because I was doing a constant sum rather than a ranking?

A I -- in all things considered, you would want to have a set of interviewers that were familiar with the scaling technique and how it is operationalized, and how it is actually conducted.

Q Well, do you think it's possible to find interviewers who would be familiar with both ranking and constant sum?

A Yes. I think it is.

Q And knowing that, would I have any predilection to pick one interviewer rather than another because I am using constant sum?

A As I said, if I am using a constant sum and there is a firm, or a group of researchers that are more familiar with the constant sum, I would probably be inclined to use that group.

Q Okay. What about the instrument, and I take it that's what we have called the questionnaire? Would that, other than changing the verb in the key question, would that be any different if I was using a constant sum rather than a ranking?

A The question that one -- the question that the research is trying to get at would be a function of the wording of the question, would be in my mind a function of how the question is structured in the instrument itself.

You make the decision, this is what I am interested in, the relative importance, I choose to operationalize it in the questionnaire in this manner.

Q So, would it be fair to say that, again, using the simple question that they have on this page, instead of divide 100 points, we would use, "Please rank." If this were the only question I was going to ask?

A That's one way of --

Q That's one way, but I mean, that would be the essential information I would be changing. So that's one change between ranking and constant sum.

Now, in your opinion, would it matter, would it make any difference when I did the study, if I were choosing a constant sum rather than a rank order?

A It always makes a difference when you do the study. Again, whether it's a rank order scale or constant sum scale, it's just a method of data collection. It's one option that any researcher has. Timing is a separate issue.

Q Would it make any difference where I did this study, because I was using a constant sum rather than a rank order?

A Would you clarify what you mean by where?

Q That was one of the things that you listed, I just wrote it down. Where the question -- where the survey takes place is I think the way you put it?

A Oh, well. What I mean by that is that there are a number of options a person has in terms of interviewing. It could be face to face interviewing, it could be a mail interviewing technique. Or it could be telephone technique.

Q And I understand that. Does it make any difference that I am using a constant sum rather than a ranking which one of those, or any other one that you want to list, I choose, in your opinion?

A No. As long as you understand the context of the decisions that go into making, designing the research study.

Q Now, are there any other research design questions, or concerns that I would have to have besides the ones that I have listed?

A Well, I don't recall I that you have listed, but --

Q Well, let me just briefly review them. The sample, who the interviewer is, what type of instrument, when, and where.

A Well, in terms of instrument construction,

questionnaire construction, there are such things as the choice of wording, the types of words that are used, the order of questions, when they are asked, which timing considerations, there are statistical or analysis questions that are involved, what sort of analyses are going to be used to analyze the data. Each type of measure adds various measurement properties to that. That confines statistical techniques, whether they are descriptive, or inferential statistics.

Q And you are saying those would differ because I chose to do a constant sum rather than a ranking?

A As I have tried to illustrate, they are different in the sense that what type of information the constant sum develops or gives you is going to give us relative numerical differences, that's not going to be true in the rank order.

MR. LANE: May I ask, Mr. Chairman, how long you intend to go? This would be a convenient break for me.

COMMISSIONER ARGETSINGER: Would you like to wrap up tonight?

MR. LANE: No. I don't think I could.

CHAIRMAN AGUERO: Then let's reconvene

tomorrow morning.

COMMISSIONER ARGETSINGER: If you're going to do it in half an hour or 45 minutes.

MR. LANE: I don't think I can do it that quickly.

CHAIRMAN AGUERO: Then let's reconvene tomorrow morning at 10:00.

MR. LANE: Thank you.

(Whereupon, hearing in the above entitled matter was adjourned at 4:55 p.m.)

C E R T I F I C A T E

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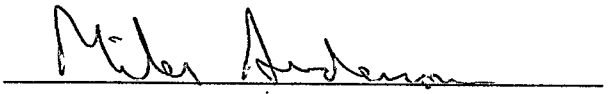

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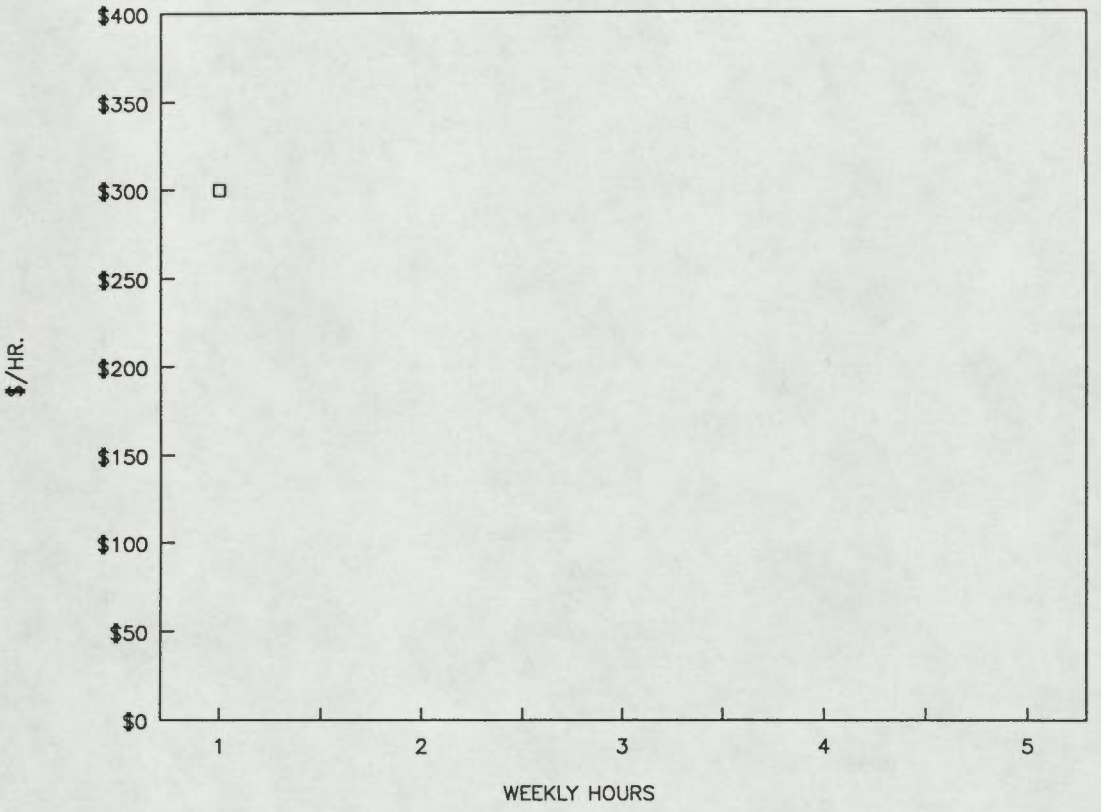

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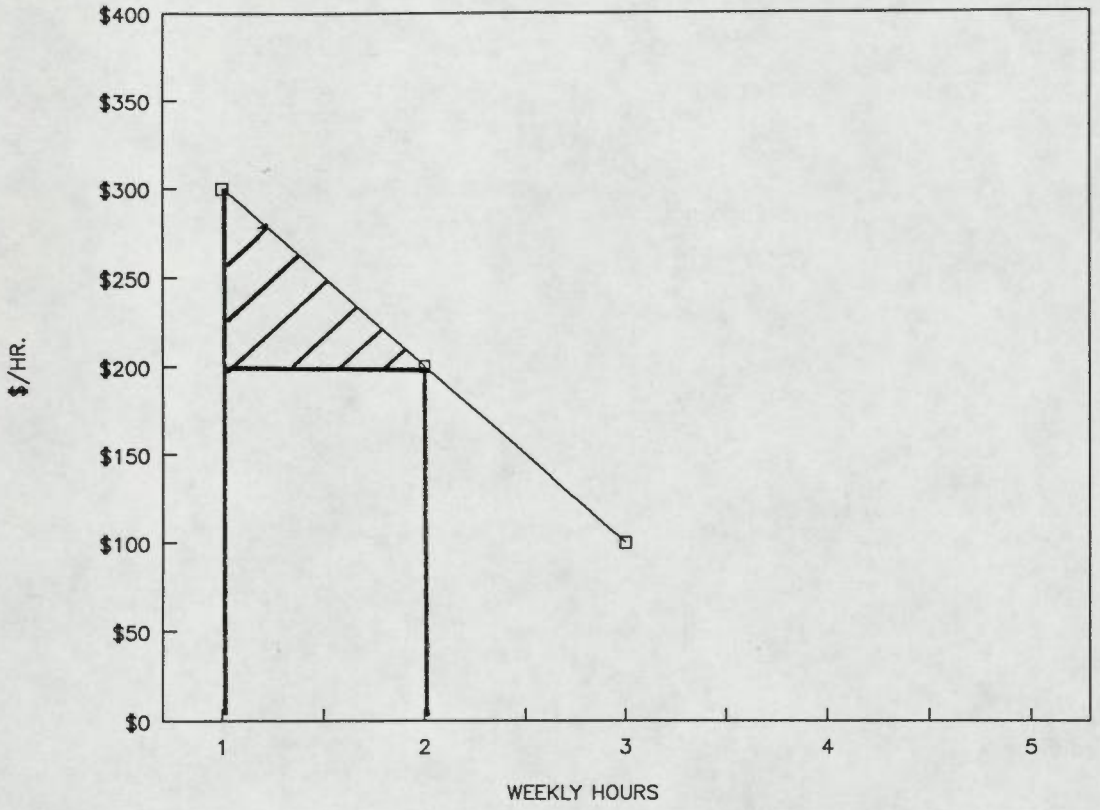

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P.S. EXHIBIT 7K

(16)

MARKETING RESEARCH

FOURTH EDITION

Measurement and Method

Most common applications in marketing involve quadric comparisons. In these situations, the respondent is asked to divide the 100 points among *all* the brands or attributes under consideration. The resulting values can be averaged across individuals to produce an *approximate* interval scale value for the brands or attributes being considered.

The value of the constant sum approach can be seen in the following example. Suppose a sample of respondents from a target market is requested to rank order several automobile characteristics with 1 being most important. Assume the individual rankings are similar and produce the following median ranks for each attribute:

Price	1
Economy	2
Dependability	3
Safety	4
Comfort	5
Style	6

A constant sum measure of the importance of the same attributes could be obtained from the following procedure:

Divide 100 points among the characteristics listed so that the division will reflect how important each characteristic is to you in your selection of a new automobile:

Economy	
Style	
Comfort	
Safety	
Price	
Dependability	
Total	100

All three of the following groups' average responses to the constant sum scale would be consistent with the rank order results just described:

	Group A	Group B	Group C
Price	35	20	65
Economy	30	18	9
Dependability	20	17	8
Safety	10	16	7
Comfort	3	15	6
Style	2	14	5
	100	100	100

However, with rank order data, the researcher has no way of knowing if price is of overwhelming importance (Group C); part of a general, strong concern for

overall cost (Group A); or not much more important than other attributes (Group B). Constant sum data provide such evidence.

Individuals will occasionally misassign points such that the total is more than, or less than, 100. This can be adjusted for by dividing each point allocation by the actual total and multiplying the result by 100.

Attitude Scales

Attitude scales are carefully constructed sets of rating scales designed to measure one or more aspects of an individual's attitude toward some object. The individual's responses to the various scales may be summed to provide a single attitude score for the individual. Or, more commonly, the responses to each scale item or subgroup of scale items may be examined independently of the other scale items.

The development of a sound attitude scale follows the procedures outlined in Chapter 6 (pages 228–230).[25]

Three unique forms of the itemized rating scale are commonly used to construct attitude scales in applied marketing research studies. These are known as *Likert scales, semantic differential scales,* and *Stapel scales.* These scale types and their use in attitude scales are discussed in some detail in the following sections. Since these are versions of the itemized rating scale, we must keep in mind the various issues and problems associated with itemized rating scales. Three other well-known scales—*Q-sort, Thurstone,* and *Guttman*—are not described in this chapter because of their limited use in applied marketing research.[26]

The Semantic Differential Scale

The *semantic differential scale* is the most frequently used attitude scaling device in marketing research.[27] In its most common form, it requires the respondent to rate the attitude object on a number of itemized, seven-point rating scales bounded at each end by one of two bipolar adjectives. For example:

[25] Examples of the development of attitude scales are R. N. Zelnio and J. P. Gagnon, "The Construction and Testing of an Image Questionnaire," *Journal of the Academy of Marketing Science* (Summer 1981), 288–299; N. K. Malhotra, "A Scale to Measure Self-Concepts, Person Concepts, and Product Concepts," *Journal of Marketing Research* (November 1981), 456–464; and J. J. Kasulis and R. F. Lusch, "Validating the Retail Store Image Concept," *Journal of the Academy of Marketing Science* (Fall 1981), 419–435.

[26] For a discussion of the Q-sort, see F. N. Kerlinger, *Foundations of Behavioral Research* (New York: Holt, Rinehart and Winston, Inc., 1973), 582–600; the Guttman technique, see A. Edwards, *Techniques of Attitude Scale Construction* (New York: Appleton-Century-Crofts, 1957), 172–200; the Thurstone scale, see L. L. Thurstone, *The Measurement of Values* (Chicago: University of Chicago Press, 1959).

[27] B. A. Greenberg, J. L. Goldstucker, and D. N. Bellenger, "What Techniques Are Used by Marketing Researchers in Business?" *Journal of Marketing* (April 1977), 62–68. For details see C. Osgood, G. Suci, and P. Tannenbaum, *The Measurement of Meaning* (Chicago: University of Illinois Press, 1957).

P.S. EXHIBIT 8X

The Canadian National Energy Program and Its Aftermath: A Game-theoretic Analysis*

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L'analyse à l'aide de la théorie des jeux des politiques publiques a été jusqu'à maintenant plus de nature prescriptive que descriptive, soulevant ainsi des questions quant à son utilité pratique. Une façon de rectifier ceci est de rendre opérationnels les concepts de solution de la théorie des jeux de façon à permettre la comparaison avec des choix sociaux observés. Ce texte se penche sur une période intéressante en soi de la politique énergétique, soit la politique d'énergie nationale du Canada et ses conséquences durant l'année qui suit son introduction. Il se divise en cinq parties. Premièrement, nous décrivons la structure du jeu qui porte sur la confrontation intergouvernementale au sujet de cette politique d'octobre 1980 à septembre 1981. Deuxièmement, les solutions théoriques pertinentes à ce jeu de négociation sont identifiées. Troisièmement, des valeurs mesurables sont dérivées de ces concepts. Quatrièmement, les valeurs obtenues des solutions de la théorie des jeux sont comparées à la distribution des paiements correspondants à l'entente Canada–Alberta de septembre 1981. Finalement, les conséquences de ces résultats et les voies de recherche futures sont examinées.

Game-theoretic analysis of public policy has followed a prescriptive rather than descriptive path, thereby raising questions about its practical relevance. One way to rectify this divergence is to operationalize solution concepts from game theory, in order to permit comparison with observed instances of social choice. The purpose of the present study is to examine an intrinsically interesting phase of energy policy, the Canadian National Energy Program (NEP) and its year-long aftermath, in those terms. There will be five stages to the investigation. First, the game-theoretic setting will be described, referring to the phase of intergovernmental confrontation in Canada over the NEP from October 1980 to September 1981. Second, relevant solution concepts for this bargaining game will be identified. Measurements are to be derived for these concepts in the third stage. In the fourth phase, the values generated by the game-theoretic solutions will be compared to the pay-off distribution corresponding to the Canada-Alberta Agreement of September 1981. Fifth, and finally, implications of the findings will be explored, along with possibilities for further research.

I think a categorical disavowal of *descriptive* content is implicit in the entire game-theoretical approach. Game theory is definitely normative in spirit and method. Its goal is a *prescription* of how a rational player should behave in a given game situation when the preferences of this player and of all the other players are given in utility units (Rapoport, 1960: 226–7).

Over the last three decades, game theorists appear to have followed Rapoport's advice. Yet the separation of description from prescription has entailed certain drawbacks, especially in the context of policy analysis. On the one hand, contemporary solution concepts in game theory are presented in increasingly rigorous, formal expositions. On the other, these prescrip-

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tions about rational behaviour have become so far removed from the practical aspects of social choice that, at least in some instances, it is reasonable to question their normative relevance.[1] Prescriptive viability would seem to entail that an ostensible solution have either some empirical basis or intuitive plausibility. But these aspects tend to be more descriptive in orientation and therefore have received relatively little attention from game theorists. By contrast, other scholars usually have studied negotiation through the 'descriptive account' of a given interaction (Zartman, 1983:6). Thus it is tenable to argue that game theory as policy analysis might benefit from efforts toward practical application, while understanding of policy-oriented negotiations might be enhanced by a rigorous approach.

Given these concerns, one way to proceed is to operationalize solution concepts from game theory, in order to permit comparison with observed instances of social choice.[2] The purpose of the present study is to examine an intrinsically interesting phase of energy policy, referring to the Canadian National Energy Program (NEP) and its year-long aftermath, in those terms. There will be five stages to the investigation. First, the game-theoretic setting will be identified, referring to the phase of intergovernmental confrontation in Canada from October 1980 to September 1981. Second, relevant solution concepts for the game will be identified. Measurements are to be derived for these concepts in the third stage. In the fourth phase, the values generated by the game-theoretic solutions will be compared to the pay-off distribution corresponding to the Canada-Alberta Agreement of September 1981. Fifth, and finally, implications of the findings will be explored, along with possibilities for further research.

The Game-theoretic Setting

Several components must be identified in order to proceed effectively with a game-theoretic framework of analysis: the number and identity of the players, whether the play results in constant-sum pay-offs, and co-operative versus non-co-operative conditions.

Most fundamental among the questions to answer about the energy game are the number and identity of the players. James (1989) found compelling evidence that the crisis phase in energy politics at the outset of the current decade involved two players, the Canadian federal government and the Government of the Province of Alberta. The normal configuration of interest groups receded during that period, with bargaining restricted to governments that engaged in a struggle over substantial and presumably escalating economic rents from energy resources. The game of confrontation politics between the central government and the principal energy-producing region, Alberta, lasted from the announcement of the NEP in October 1980 to the signing of the Canada-Alberta Agreement in September 1981. Given the potentially vast revenues from taxation of oil and natural gas at the start of the 1980s, it is not surprising that energy politics crystallized into an intense competition between relatively autonomous levels of government.[3]

Some description of the NEP's formulation and implementation, along with the politics it inspired, may be useful in demonstrating that, although societal actors did not disappear from the scene, the usual levels of consultation with interest groups did not hold true during the phase of confrontation. To begin, the NEP consisted of a set of decisions prepared by a small circle of policy-makers. These individuals designed its provisions within a broad direction of policy set forth by Energy Minister Marc Lalonde. Thus public officials responsible for energy policy, not societal demands, provided the impetus for the NEP. Of course, as Doern and Phidd (1983:476) observed, 'the NEP was much more a marriage of interests between ministers and bureaucrats, spawned by intense partisan conflict,' as opposed to a 'bureau-

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For society-centred models, such as pluralism, groups like the energy industry would be expected to have input into the policy-making process. The energy program of the Liberal government, however, took virtually no notice of the demands of energy producing corporations. The NEP emerged almost entirely from within the government and bureaucracy. This result is not surprising, given the pre-NEP situation. It will become apparent – based on a later review of Alberta's July 1980 Proposals – that the Liberal government perceived the need to respond decisively. The Proposals put the Liberal government at a great disadvantage in terms of economic rent shares and the energy industry would have been very unlikely to respond positively to a revision favouring Ottawa. The government therefore acted under two constraints: time and boundaries on the content of its reply, which had to redistribute rent shares.

With regard to the year that followed announcement of the NEP, the evidence clearly favours a two-player game. Collective action by the oil and gas industries, consumers and other groups does not explain the subsequent process of bargaining. Instead, acting alone, Alberta retaliated against the federal government almost immediately, creating a deadlock that lasted nearly a year. With its program of 'province-building' in disarray, the Lougheed government eventually approached its federal rival and entered into bilateral negotiations. As indicated previously, these prominent events entailed action by governments, as opposed to logrolling among interest groups.

None of these observations is intended to dismiss the impact of interest groups on the formulation and implementation of public policy under normal circumstances. Prominent examples would include the Canadian Banking Association's role in shaping evolution of the *Bank Act* and the business lobby's ability to weaken or eliminate successive Competition Policy bills. Furthermore, professional associations influence policy in other fields, for example, the legal and medical associations with regard to justice and health care, respectively (Doern and Phidd, 1983:80–81). While the oil and gas industries, along with Ontario utilities and consumers, looked on with great concern, these groups did not participate directly in the phase of intergovernmental bargaining over the NEP.[4] Both before and after the confrontation period, however, such interest groups contributed to the evolution of energy policy through voting, lobbying and other mechanisms. In sum, the two-player designation is intended for a specific interval, not the long-term process of making energy policy in Canada.

Whether or not the game is constant-sum is also fundamental to its analysis. A constant-sum game is one of pure conflict; one adversary's gain is the other's loss (Davis, 1983:75). The alternative to that is the variable-sum game, which offers some prospect of mutual gain through agreement.[5]

By consensus, the bargaining initiated by the NEP over economic rents is regarded as a variable-sum game. Simeon (1980:182) observed that energy revenues had contributed over $5 billion to the Alberta Heritage Trust Fund, while Courchene and Melvin (1980:192) drew attention to Alberta's 'rapidly rising energy revenues'. In later years, Norrie (1984) and Ruitenbeek (1985) also noted the expectation of higher economic rents that had existed during the era of the Program; further evidence regarding increasing revenues from oil and natural gas at the outset of the decade is plentiful. Since the game is deemed to be variable-sum, subsequent analysis focusses on interdependent choice, as opposed to security levels and maximizing minimal pay-offs in a constant-sum game (Brams, 1975:4–5).

Of course, there is a sense in which the game could be considered constant-sum: when the oil firms are included in the bargaining, a fixed amount of recoverable oil

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and gas is assumed and regulation occurs at a single designated point in time. But the *price* of energy is a variable and the amount of *economically* recoverable oil is a positive function of price. At any arbitrarily chosen moment the world prices of oil and natural gas are fixed, but it is still possible to describe the game as variable-sum, because the aggregate level of economic rents can change from one scenario to the next.

Another aspect of the game structure that must be settled is whether play is co-operative or non-co-operative. 'The fundamental distinction between co-operative and non-co-operative games,' according to Friedman (1986:148), 'is that cooperative games allow binding agreements while noncooperative games do not'. This description is of more practical value when treated as a continuum rather than a dichotomy. It is difficult to imagine any agreement in political life that is completely enforceable; examples to the contrary are easy to cite. Support from interest groups may be transferred from one political party to another; coalitions at nominating conventions change allegiance despite solemn statements to the contrary; and alliances between nation-states may be discarded if one partner sees an opportunity to benefit from doing so.

However, there are constraints upon such actions and, in a political system such as that of Canada, blatant disregard by governments for negotiated settlements will be prohibitively expensive. A reputation for abrogating agreements – especially those of a prominent nature, such as the 1981 Canada-Alberta Agreement – could seriously impede subsequent efforts to co-operate with other governments. A record of capricious dealings also would be unsettling for the economy, because important interest groups (like labour and business) do not look favourably upon such behaviour from either provincial or federal governments.

Given these constraints, it is reasonable to expect that intergovernmental bargaining within Canada, such as the case at hand, will lean toward the co-operative end of the gaming spectrum. The costs associated with unilateral abrogation serve as a deterrent, especially with regard to breaking prominent agreements. Although societal actors and other governments within confederation did not participate in the Canada-Alberta bargaining game over energy, each of the adversaries had to be aware of a keenly interested audience composed of future negotiating partners over other issues. With this factor in mind, it is appropriate to consider the phase of federal-provincial confrontation over energy revenues in the context of co-operative game theory.[6]

Appropriate solution concepts for the game of federal-provincial bargaining can be identified, given one further piece of information. The rivalry over energy revenues belongs to the class of fixed threat bargaining games. The latter are 'two-person situations in which the players each obtain fixed utility levels if they fail to make an agreement' (Friedman, 1986:151). These games focus on the distribution of pay-offs between two players, as in the case of the conflict over resource-based economic rents between Alberta and the Government of Canada.

Solution Concepts

One of the principal shortcomings of game theory has been the lack of a single, compelling solution concept (Brander, 1985:62).[7] This ongoing problem, which can be traced to the relatively abstract nature of conventional game theory, is as true for fixed threat bargaining games as for any other kind. Solution concepts abound but share an arbitrary character (Young, 1989): Why should one be considered better than another? Since the present focus is more explanatory than normative, a natural means of judgment is whether a given outcome is in line with the result predicted by a particular solution concept.

For example, suppose that a set of solution concepts is derived from various theo-

PTV EXHIBIT 26-X

Thursday Evening

	6:00	6:30	7:00	Prime Time 7:30	8:00	8:30
2	News	NBC News	Wheel of Fortune	Jeopardy!	Cosby Show	Different World
4	News		NBC News	Family Feud	Cosby Show	Different World
5	Who's the Boss?	Three's Company	Cosby Show	Current Affair	Simpsons	Babes
7	News	ABC News	Wheel of Fortune	Jeopardy!	Salute to America's Pets	
8	News	NBC News	Entmt. Tonight	Inside Edition	Cosby Show	Different World
9	News		CBS News	Entmt. Tonight	Top Cops	
11	News	CBS News	Hard Copy	Family Feud	Top Cops	
13	News		ABC News	Entmt. Tonight	Salute to America's Pets	
16	News	CBS News	News	Who's the Boss?	Top Cops	
20	Growing Pains	Mama's Family	Night Court	Cheers	**Movie:** Red Heat	
25	News	NBC News	Wheel of Fortune	Jeopardy!	Cosby Show	Different World
26	Wild America	Business Report	MacNeil, Lehrer		This Old House	Living Isles
32	MacNeil, Lehrer		Evening Exchange		Arab World	World of Ideas
45	Love Connection	Jeffersons	M*A*S*H	M*A*S*H	Simpsons	Babes
47	News	ABC News	Wheel of Fortune	Jeopardy!	Salute to America's Pets	
50	AWA Wrestling		Judge	News	**Movie:** Pacific Inferno	
54	ALF	Sanford and Son	Mama's Family	Amen	**Movie:** Hardbodies 2	
MPT	MacNeil, Lehrer		Business Report	Wild America	Wild America	Motorweek '91
CABLE-TV CHANNELS						
A&E	Avengers		World of Survival	Crusade in Europe	Victory at Sea	World in Action
AMC	**Movie:** Barricade (5:45)		**Movie:** Blackbeard, the Pirate			
BET	Video LP	Soft Notes	Our Voices	Live from L.A.	Bet on Jazz	Screen Scene
CNN	News		Moneyline	Crossfire	News	
DSC	Beyond 2000		Rendezvous	World Monitor	Mysterious World	Terra X
ESN	U.S. Open Golf: Telecast from Chaska, Minn. (5:00)		SportsCenter	U.S. Open Golf: Taped at Chaska, Minn.		
FAM	Our House		Scarecrow and Mrs. King		**Movie:** The Gambler from Natchez	
LIF	Supermarket		Great TV Poll	Open House	L.A. Law	
MTV	Power Packs		Half Hour Comedy	Yo! MTV Raps	Prime with Martha Quinn	
NIK	Get the Picture	Make the Grade	Inspector Gadget	Looney Tunes	Mork & Mindy	Bewitched
TBS	Bewitched (6:05)	Andy Griffith (6:35)	Jeffersons (7:05)	Baseball: Braves at Mets (7:35)		
TNN	VideoPM (5:00)			Be a Star	On Stage	Music Shop
TNT	Gilligan's Island	Bugs Bunny			**Movie:** Mogambo	
USA	Smurfs	Scooby Doo	MacGyver		Murder, She Wrote	
WOR	Cosby Show	Who's the Boss?	Who's the Boss?	To Be Announced	Quincy	
PREMIUM CHANNELS						
DIS	**Movie:** The Adventures of Milo and Otis			Preview	**Movie:** The Journey of Natty Gann	
HBO	**Movie:** BMX Bandits (5:30)		**Movie:** Real Genius			
HTS	Volleyball: Taped at San Antonio (5:00)		Orioles Report	Baseball: Royals at Orioles		
MAX	**Movie:** Man Outside (5:05)		**Movie:** It Happened in Brooklyn			
SHO	Red Balloon (5:55)	**Movie:** Armed and Dangerous			**Movie:** Heart Condition	
TMC	**Movie:** Love at Largo (5:00)		**Movie:** A World Apart			

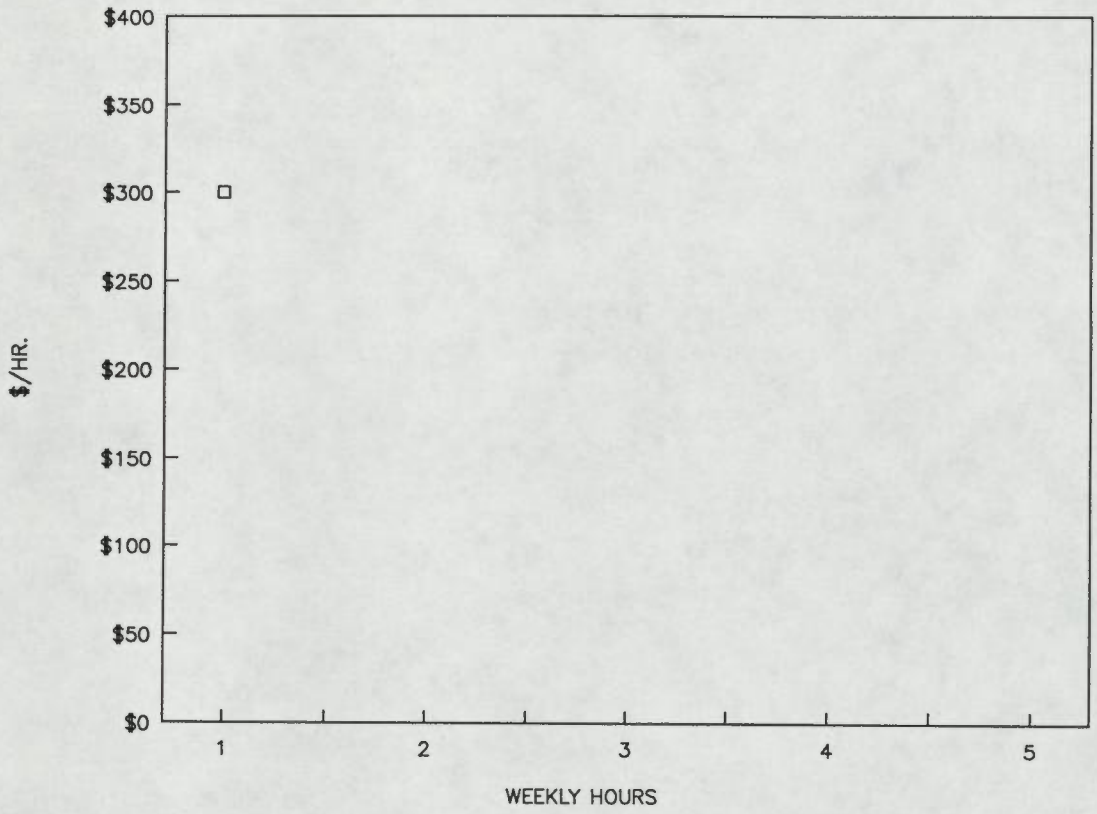
7:30 (9) (45) ENTERTAINMENT TONIGHT (CC)

June 13, 1991

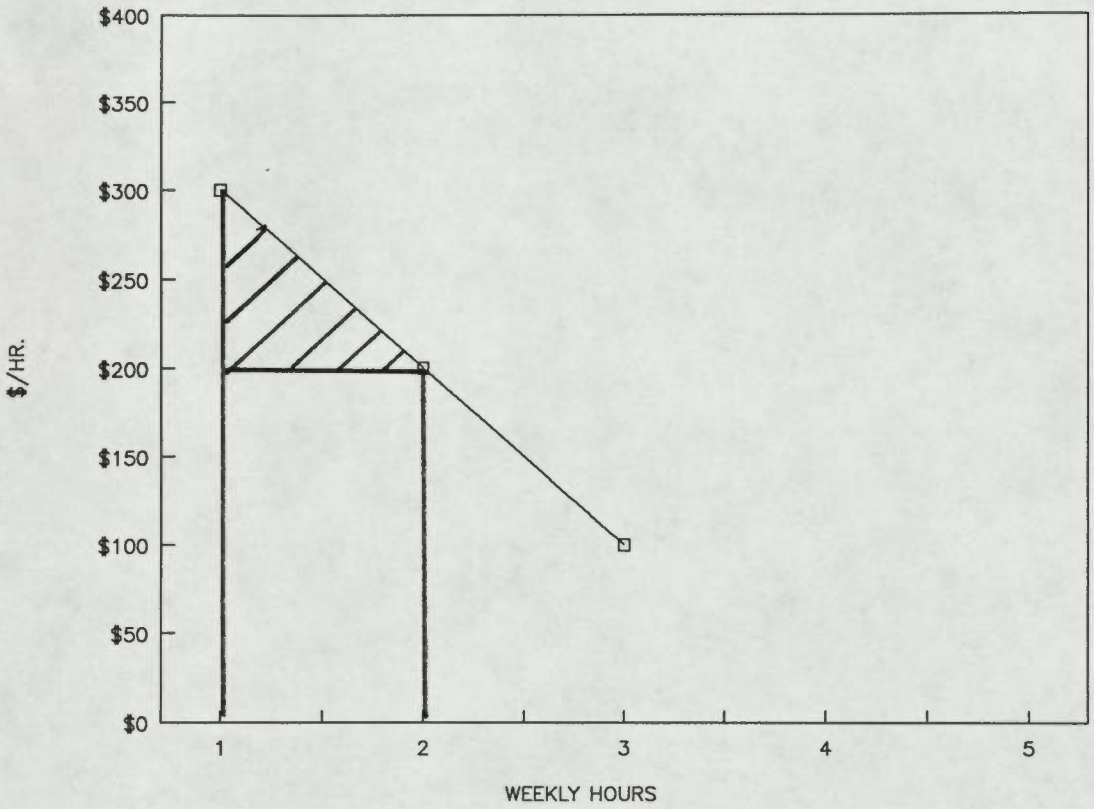
	Prime Time 9:00	9:30	10:00	10:30	11:00	11:30
2	Cheers	Seinfeld	L.A. Law		News	Tonight
4	Cheers	Seinfeld	L.A. Law		News	Tonight
5	Beverly Hills, 90210		News		M*A*S*H	Studs
7	Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
8	Cheers	Seinfeld	L.A. Law		News	Tonight
9	Broken Badges		Robin Hood: Myth, Man, Movie		News	Arsenio Hall
11	Broken Badges		Robin Hood: Myth, Man, Movie		News	Who's the Boss?
13	Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
16	Broken Badges		Robin Hood: Myth, Man, Movie		News	Fly by Night
20	**Movie** (Cont.)		Star Trek: The Next Generation		Odd Couple	Love Connection
25	Cheers	Seinfeld	L.A. Law		News	Tonight
26	Mystery!		Chandler			European Journal
32	Nova		Health Quarterly		Pro & Con	Evening Exchange
45	Beverly Hills, 90210		News		Arsenio Hall	
47	Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
50	**Movie** (Cont.)		Hardcastle and McCormick		Mister Ed	Love Phone
54	**Movie** (Cont.)		Hunter		Three's Company	**Movie**
MPT	Mystery!		Taggart		**Movie:** The Woman in Green	
CABLE-TV CHANNELS						
A&E	**Movie:** The Mountain and the Molehill			Improv Tonite	Evening at the Improv	
AMC	**Movie:** Seven Days Leave			**Movie:** Day-Time Wife		
BET	Video Soul				Bet on Jazz	Screen Scene
CNN	Larry King Live		News		Moneyline	Sports
DSC	Beyond 2000		Adventurers	Diving	G.I. Diary	
ESN	U.S. Open Golf (Cont.)	Boxing: Jones-Sanabria (bantamweights)			Baseball Tonight	SportsCenter
FAM	**Movie** (Cont.)		700 Club		Scarecrow and Mrs. King	
LIF	**Movie:** Cujo				Tracey Ullman	Molly Dodd
MTV	Prime with Martha Quinn (Cont.)				Half Hour Comedy	Big Picture
NIK	Get Smart	Dragnet	Alfred Hitchcock	Green Acres	Saturday Night	Mister Ed
TBS	Baseball (Cont.)		**Movie:** Popeye Doyle (10:20)			
TNN	Nashville Now			Crook and Chase	On Stage	Music Shop
TNT	**Movie** (Cont.)			**Movie:** 7 Women		
USA	**Movie:** Hoosiers					Miami Vice
WOR	Kojak		News		It Takes a Thief	
PREMIUM CHANNELS						
DIS	**Movie** (Cont.)		**Movie:** Oklahoma!			
HBO	**Movie:** Night Game			**Movie:** Another 48 HRS. (10:45)		
HTS	Baseball (Cont.)			Indy Car World	This Week in NASCAR	
MAX	**Movie:** Summer School				**Movie:** Wild Orchid	
SHO	**Movie** (Cont.)		Jeff Altman	**Movie:** Gardens of Stone		
TMC	**Movie:** Side Out				**Movie:** Cadillac Man	

P.S. EXHIBIT ~~6~~ 5X

9/26/91



P.S. EXHIBIT 6X



MARGINAL VALUE = $200
MARKETPLACE VALUE = $400 ($200 X 2)
TOTAL VALUE = $500 ($300+$200)

P.S. EXHIBIT 7X

(16)

MARKETING RESEARCH

FOURTH EDITION

Measurement and Method

Most common applications in marketing involve quadric comparisons. In these situations, the respondent is asked to divide the 100 points among *all* the brands or attributes under consideration. The resulting values can be averaged across individuals to produce an *approximate* interval scale value for the brands or attributes being considered.

The value of the constant sum approach can be seen in the following example. Suppose a sample of respondents from a target market is requested to rank order several automobile characteristics with 1 being most important. Assume the individual rankings are similar and produce the following median ranks for each attribute:

Price	1
Economy	2
Dependability	3
Safety	4
Comfort	5
Style	6

A constant sum measure of the importance of the same attributes could be obtained from the following procedure:

Divide 100 points among the characteristics listed so that the division will reflect how important each characteristic is to you in your selection of a new automobile:

Economy	
Style	
Comfort	
Safety	
Price	
Dependability	
Total	100

All three of the following groups' average responses to the constant sum scale would be consistent with the rank order results just described:

	Group A	Group B	Group C
Price	35	20	65
Economy	30	18	9
Dependability	20	17	8
Safety	10	16	7
Comfort	3	15	6
Style	2	14	5
	100	100	100

However, with rank order data, the researcher has no way of knowing if price is of overwhelming importance (Group C); part of a general, strong concern for

overall cost (Group A); or not much more important than other attributes (Group B). Constant sum data provide such evidence.

Individuals will occasionally misassign points such that the total is more than, or less than, 100. This can be adjusted for by dividing each point allocation by the actual total and multiplying the result by 100.

Attitude Scales

Attitude scales are carefully constructed sets of rating scales designed to measure one or more aspects of an individual's attitude toward some object. The individual's responses to the various scales may be summed to provide a single attitude score for the individual. Or, more commonly, the responses to each scale item or subgroup of scale items may be examined independently of the other scale items.

The development of a sound attitude scale follows the procedures outlined in Chapter 6 (pages 228–230).[25]

Three unique forms of the itemized rating scale are commonly used to construct attitude scales in applied marketing research studies. These are known as *Likert scales, semantic differential scales,* and *Stapel scales.* These scale types and their use in attitude scales are discussed in some detail in the following sections. Since these are versions of the itemized rating scale, we must keep in mind the various issues and problems associated with itemized rating scales. Three other well-known scales—*Q-sort, Thurstone,* and *Guttman*—are not described in this chapter because of their limited use in applied marketing research.[26]

The Semantic Differential Scale

The *semantic differential scale* is the most frequently used attitude scaling device in marketing research.[27] In its most common form, it requires the respondent to rate the attitude object on a number of itemized, seven-point rating scales bounded at each end by one of two bipolar adjectives. For example:

[25] Examples of the development of attitude scales are R. N. Zelnio and J. P. Gagnon, "The Construction and Testing of an Image Questionnaire," *Journal of the Academy of Marketing Science* (Summer 1981), 288–299; N. K. Malhotra, "A Scale to Measure Self-Concepts, Person Concepts, and Product Concepts," *Journal of Marketing Research* (November 1981), 456–464; and J. J. Kasulis and R. F. Lusch, "Validating the Retail Store Image Concept," *Journal of the Academy of Marketing Science* (Fall 1981), 419–435.

[26] For a discussion of the Q-sort, see F. N. Kerlinger, *Foundations of Behavioral Research* (New York: Holt, Rinehart and Winston, Inc., 1973), 582–600; the Guttman technique, see A. Edwards, *Techniques of Attitude Scale Construction* (New York: Appleton-Century-Crofts, 1957), 172–200; the Thurstone scale, see L. L. Thurstone, *The Measurement of Values* (Chicago: University of Chicago Press, 1959).

[27] B. A. Greenberg, J. L. Goldstucker, and D. N. Bellenger, "What Techniques Are Used by Marketing Researchers in Business?" *Journal of Marketing* (April 1977), 62–68. For details see C. Osgood, G. Suci, and P. Tannenbaum, *The Measurement of Meaning* (Chicago: University of Illinois Press, 1957).

P.S. EXHIBIT 8X

The Canadian National Energy Program and Its Aftermath: A Game-theoretic Analysis*

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L'analyse à l'aide de la théorie des jeux des politiques publiques a été jusqu'à maintenant plus de nature prescriptive que descriptive, soulevant ainsi des questions quant à son utilité pratique. Une façon de rectifier ceci est de rendre opérationnels les concepts de solution de la théorie des jeux de façon à permettre la comparaison avec des choix sociaux observés. Ce texte se penche sur une période intéressante en soi de la politique énergétique, soit la politique d'énergie nationale du Canada et ses conséquences durant l'année qui suit son introduction. Il se divise en cinq parties. Premièrement, nous décrivons la structure du jeu qui porte sur la confrontation intergouvernementale au sujet de cette politique d'octobre 1980 à septembre 1981. Deuxièmement, les solutions théoriques pertinentes à ce jeu de négociation sont identifiées. Troisièmement, des valeurs mesurables sont dérivées de ces concepts. Quatrièmement, les valeurs obtenues des solutions de la théorie des jeux sont comparées à la distribution des paiements correspondants à l'entente Canada–Alberta de septembre 1981. Finalement, les conséquences de ces résultats et les voies de recherche futures sont examinées.

Game-theoretic analysis of public policy has followed a prescriptive rather than descriptive path, thereby raising questions about its practical relevance. One way to rectify this divergence is to operationalize solution concepts from game theory, in order to permit comparison with observed instances of social choice. The purpose of the present study is to examine an intrinsically interesting phase of energy policy, the Canadian National Energy Program (NEP) and its year-long aftermath, in those terms. There will be five stages to the investigation. First, the game-theoretic setting will be described, referring to the phase of intergovernmental confrontation in Canada over the NEP from October 1980 to September 1981. Second, relevant solution concepts for this bargaining game will be identified. Measurements are to be derived for these concepts in the third stage. In the fourth phase, the values generated by the game-theoretic solutions will be compared to the pay-off distribution corresponding to the Canada-Alberta Agreement of September 1981. Fifth, and finally, implications of the findings will be explored, along with possibilities for further research.

I think a categorical disavowal of *descriptive* content is implicit in the entire game-theoretical approach. Game theory is definitely normative in spirit and method. Its goal is a *prescription* of how a rational player should behave in a given game situation when the preferences of this player and of all the other players are given in utility units (Rapoport, 1960: 226–7).

Over the last three decades, game theorists appear to have followed Rapoport's advice. Yet the separation of description from prescription has entailed certain drawbacks, especially in the context of policy analysis. On the one hand, contemporary solution concepts in game theory are presented in increasingly rigorous, formal expositions. On the other, these prescrip-

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tions about rational behaviour have become so far removed from the practical aspects of social choice that, at least in some instances, it is reasonable to question their normative relevance.[1] Prescriptive viability would seem to entail that an ostensible solution have either some empirical basis or intuitive plausibility. But these aspects tend to be more descriptive in orientation and therefore have received relatively little attention from game theorists. By contrast, other scholars usually have studied negotiation through the 'descriptive account' of a given interaction (Zartman, 1983:6). Thus it is tenable to argue that game theory as policy analysis might benefit from efforts toward practical application, while understanding of policy-oriented negotiations might be enhanced by a rigorous approach.

Given these concerns, one way to proceed is to operationalize solution concepts from game theory, in order to permit comparison with observed instances of social choice.[2] The purpose of the present study is to examine an intrinsically interesting phase of energy policy, referring to the Canadian National Energy Program (NEP) and its year-long aftermath, in those terms. There will be five stages to the investigation. First, the game-theoretic setting will be identified, referring to the phase of intergovernmental confrontation in Canada from October 1980 to September 1981. Second, relevant solution concepts for the game will be identified. Measurements are to be derived for these concepts in the third stage. In the fourth phase, the values generated by the game-theoretic solutions will be compared to the pay-off distribution corresponding to the Canada-Alberta Agreement of September 1981. Fifth, and finally, implications of the findings will be explored, along with possibilities for further research.

The Game-theoretic Setting

Several components must be identified in order to proceed effectively with a game-theoretic framework of analysis: the number and identity of the players, whether the play results in constant-sum pay-offs, and co-operative versus non-co-operative conditions.

Most fundamental among the questions to answer about the energy game are the number and identity of the players. James (1989) found compelling evidence that the crisis phase in energy politics at the outset of the current decade involved two players, the Canadian federal government and the Government of the Province of Alberta. The normal configuration of interest groups receded during that period, with bargaining restricted to governments that engaged in a struggle over substantial and presumably escalating economic rents from energy resources. The game of confrontation politics between the central government and the principal energy-producing region, Alberta, lasted from the announcement of the NEP in October 1980 to the signing of the Canada-Alberta Agreement in September 1981. Given the potentially vast revenues from taxation of oil and natural gas at the start of the 1980s, it is not surprising that energy politics crystallized into an intense competition between relatively autonomous levels of government.[3]

Some description of the NEP's formulation and implementation, along with the politics it inspired, may be useful in demonstrating that, although societal actors did not disappear from the scene, the usual levels of consultation with interest groups did not hold true during the phase of confrontation. To begin, the NEP consisted of a set of decisions prepared by a small circle of policy-makers. These individuals designed its provisions within a broad direction of policy set forth by Energy Minister Marc Lalonde. Thus public officials responsible for energy policy, not societal demands, provided the impetus for the NEP. Of course, as Doern and Phidd (1983:476) observed, 'the NEP was much more a marriage of interests between ministers and bureaucrats, spawned by intense partisan conflict,' as opposed to a 'bureau-

cratic imposition'.

For society-centred models, such as pluralism, groups like the energy industry would be expected to have input into the policy-making process. The energy program of the Liberal government, however, took virtually no notice of the demands of energy producing corporations. The NEP emerged almost entirely from within the government and bureaucracy. This result is not surprising, given the pre-NEP situation. It will become apparent – based on a later review of Alberta's July 1980 Proposals – that the Liberal government perceived the need to respond decisively. The Proposals put the Liberal government at a great disadvantage in terms of economic rent shares and the energy industry would have been very unlikely to respond positively to a revision favouring Ottawa. The government therefore acted under two constraints: time and boundaries on the content of its reply, which had to redistribute rent shares.

With regard to the year that followed announcement of the NEP, the evidence clearly favours a two-player game. Collective action by the oil and gas industries, consumers and other groups does not explain the subsequent process of bargaining. Instead, acting alone, Alberta retaliated against the federal government almost immediately, creating a deadlock that lasted nearly a year. With its program of 'province-building' in disarray, the Lougheed government eventually approached its federal rival and entered into bilateral negotiations. As indicated previously, these prominent events entailed action by governments, as opposed to logrolling among interest groups.

None of these observations is intended to dismiss the impact of interest groups on the formulation and implementation of public policy under normal circumstances. Prominent examples would include the Canadian Banking Association's role in shaping evolution of the *Bank Act* and the business lobby's ability to weaken or eliminate successive Competition Policy bills. Furthermore, professional associations influence policy in other fields, for example, the legal and medical associations with regard to justice and health care, respectively (Doern and Phidd, 1983:80–81). While the oil and gas industries, along with Ontario utilities and consumers, looked on with great concern, these groups did not participate directly in the phase of intergovernmental bargaining over the NEP.[4] Both before and after the confrontation period, however, such interest groups contributed to the evolution of energy policy through voting, lobbying and other mechanisms. In sum, the two-player designation is intended for a specific interval, not the long-term process of making energy policy in Canada.

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ed amount of recoverable oil

and gas is assumed and regulation occurs at a single designated point in time. But the *price* of energy is a variable and the amount of *economically* recoverable oil is a positive function of price. At any arbitrarily chosen moment the world prices of oil and natural gas are fixed, but it is still possible to describe the game as variable-sum, because the aggregate level of economic rents can change from one scenario to the next.

Another aspect of the game structure that must be settled is whether play is co-operative or non-co-operative. 'The fundamental distinction between co-operative and non-co-operative games,' according to Friedman (1986:148), 'is that cooperative games allow binding agreements while noncooperative games do not'. This description is of more practical value when treated as a continuum rather than a dichotomy. It is difficult to imagine any agreement in political life that is completely enforceable; examples to the contrary are easy to cite. Support from interest groups may be transferred from one political party to another; coalitions at nominating conventions change allegiance despite solemn statements to the contrary; and alliances between nation-states may be discarded if one partner sees an opportunity to benefit from doing so.

However, there are constraints upon such actions and, in a political system such as that of Canada, blatant disregard by governments for negotiated settlements will be prohibitively expensive. A reputation for abrogating agreements – especially those of a prominent nature, such as the 1981 Canada-Alberta Agreement – could seriously impede subsequent efforts to co-operate with other governments. A record of capricious dealings also would be unsettling for the economy, because important interest groups (like labour and business) do not look favourably upon such behaviour from either provincial or federal governments.

Given these constraints, it is reasonable to expect that intergovernmental bargaining within Canada, such as the case at hand, will lean toward the co-operative end of the gaming spectrum. The costs associated with unilateral abrogation serve as a deterrent, especially with regard to breaking prominent agreements. Although societal actors and other governments within confederation did not participate in the Canada-Alberta bargaining game over energy, each of the adversaries had to be aware of a keenly interested audience composed of future negotiating partners over other issues. With this factor in mind, it is appropriate to consider the phase of federal-provincial confrontation over energy revenues in the context of co-operative game theory.[6]

Appropriate solution concepts for the game of federal-provincial bargaining can be identified, given one further piece of information. The rivalry over energy revenues belongs to the class of fixed threat bargaining games. The latter are 'two-person situations in which the players each obtain fixed utility levels if they fail to make an agreement' (Friedman, 1986:151). These games focus on the distribution of pay-offs between two players, as in the case of the conflict over resource-based economic rents between Alberta and the Government of Canada.

Solution Concepts

One of the principal shortcomings of game theory has been the lack of a single, compelling solution concept (Brander, 1985:62).[7] This ongoing problem, which can be traced to the relatively abstract nature of conventional game theory, is as true for fixed threat bargaining games as for any other kind. Solution concepts abound but share an arbitrary character (Young, 1989): Why should one be considered better than another? Since the present focus is more explanatory than normative, a natural means of judgment is whether a given outcome is in line with the result predicted by a particular solution concept.

For example, suppose that a set of solution concepts is derived from various theo-

PTV EXHIBIT 26-X

Thursday Evening

June 13, 1991

Prime Time

	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
2	News	NBC News	Wheel of Fortune	Jeopardy!	Cosby Show	Different World	Cheers	Seinfeld	L.A. Law		News	Tonight
4	News		NBC News	Family Feud	Cosby Show	Different World	Cheers	Seinfeld	L.A. Law		News	Tonight
5	Who's the Boss?	Three's Company	Cosby Show	Current Affair	Simpsons	Babes	Beverly Hills, 90210		News		M*A*S*H	Studs
7	News	ABC News	Wheel of Fortune	Jeopardy!	Salute to America's Pets		Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
8	News	NBC News	Entmt. Tonight	Inside Edition	Cosby Show	Different World	Cheers	Seinfeld	L.A. Law		News	Tonight
9	News		CBS News	Entmt. Tonight	Top Cops		Broken Badges		Robin Hood: Myth, Man, Movie		News	Arsenio Hall
11	News	CBS News	Hard Copy	Family Feud	Top Cops		Broken Badges		Robin Hood: Myth, Man, Movie		News	Who's the Boss?
13	News		ABC News	Entmt. Tonight	Salute to America's Pets		Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
16	News	CBS News	News	Who's the Boss?	Top Cops		Broken Badges		Robin Hood: Myth, Man, Movie		News	Fly by Night
20	Growing Pains	Mama's Family	Night Court	Cheers	**Movie:** Red Heat		**Movie** (Cont.)		Star Trek: The Next Generation		Odd Couple	Love Connection
25	News	NBC News	Wheel of Fortune	Jeopardy!	Cosby Show	Different World	Cheers	Seinfeld	L.A. Law		News	Tonight
26	Wild America	Business Report	MacNeil, Lehrer		This Old House	Living Isles	Mystery!		Chandler			European Journal
32	MacNeil, Lehrer		Evening Exchange		Arab World	World of Ideas	Nova		Health Quarterly		Pro & Con	Evening Exchange
45	Love Connection	Jeffersons	M*A*S*H	M*A*S*H	Simpsons	Babes	Beverly Hills, 90210		News		Arsenio Hall	
47	News	ABC News	Wheel of Fortune	Jeopardy!	Salute to America's Pets		Gabriel's Fire		PrimeTime Live		News	U.S. Open Golf Highlights
50	AWA Wrestling		Judge	News	**Movie:** Pacific Inferno		**Movie** (Cont.)		Hardcastle and McCormick		Mister Ed	Love Phone
54	ALF	Sanford and Son	Mama's Family	Amen	**Movie:** Hardbodies 2		**Movie** (Cont.)		Hunter		Three's Company	**Movie**
MPT	MacNeil, Lehrer		Business Report	Wild America	Wild America	Motorweek '91	Mystery!		Taggart		**Movie:** The Woman in Green	

CABLE-TV CHANNELS

	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
A&E	Avengers		World of Survival	Crusade in Europe	Victory at Sea	World in Action	**Movie:** The Mountain and the Molehill			Improv Tonite	Evening at the Improv	
AMC	**Movie:** Barricade (5:45)		**Movie:** Blackbeard, the Pirate				**Movie:** Seven Days Leave			**Movie:** Day-Time Wife		
BET	Video LP	Soft Notes	Our Voices	Live from L.A.	Bet on Jazz	Screen Scene	Video Soul				Bet on Jazz	Screen Scene
CNN	News		Moneyline	Crossfire	News		Larry King Live		News		Moneyline	Sports
DSC	Beyond 2000		Rendezvous	World Monitor	Mysterious World	Terra X	Beyond 2000		Adventurers	Diving	G.I. Diary	
ESN	U.S. Open Golf: Telecast from Chaska, Minn. (5:00)		SportsCenter	U.S. Open Golf: Taped at Chaska, Minn.			U.S. Open Golf (Cont.)	Boxing: Jones-Sanabria (bantamweights)			Baseball Tonight	SportsCenter
FAM	Our House		Scarecrow and Mrs. King		**Movie:** The Gambler from Natchez		**Movie** (Cont.)		700 Club		Scarecrow and Mrs. King	
LIF	Supermarket		Great TV Poll	Open House	L.A. Law		**Movie:** Cujo				Tracey Ullman	Molly Dodd
MTV	Power Packs		Half Hour Comedy	Yo! MTV Raps	Prime with Martha Quinn		Prime with Martha Quinn (Cont.)				Half Hour Comedy	Big Picture
NIK	Get the Picture	Make the Grade	Inspector Gadget	Looney Tunes	Mork & Mindy	Bewitched	Get Smart	Dragnet	Alfred Hitchcock	Green Acres	Saturday Night	Mister Ed
TBS	Bewitched (6:05)	Andy Griffith (6:35)	Jeffersons (7:05)	Baseball: Braves at Mets (7:35)			Baseball (Cont.)		**Movie:** Popeye Doyle (10:20)			
TNN	VideoPM (5:00)			Be a Star	On Stage	Music Shop	Nashville Now			Crook and Chase	On Stage	Music Shop
TNT	Gilligan's Island	Bugs Bunny			**Movie:** Mogambo		**Movie** (Cont.)			**Movie:** 7 Women		
USA	Smurfs	Scooby Doo	MacGyver		Murder, She Wrote		**Movie:** Hoosiers					Miami Vice
WOR	Cosby Show	Who's the Boss?	Who's the Boss?	To Be Announced	Quincy		Kojak		News		It Takes a Thief	

PREMIUM CHANNELS

	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
DIS	**Movie:** The Adventures of Milo and Otis			Preview	**Movie:** The Journey of Natty Gann		**Movie** (Cont.)		**Movie:** Oklahoma!			
HBO	**Movie:** BMX Bandits (5:30)		**Movie:** Real Genius				**Movie:** Night Game			**Movie:** Another 48 HRS. (10:45)		
HTS	Volleyball: Taped at San Antonio (5:00)		Orioles Report	Baseball: Royals at Orioles			Baseball (Cont.)			Indy Car World	This Week in NASCAR	
MAX	**Movie:** Man Outside (5:05)		**Movie:** It Happened in Brooklyn				**Movie:** Summer School				**Movie:** Wild Orchid	
SHO	Red Balloon (5:55)	**Movie:** Armed and Dangerous			**Movie:** Heart Condition		**Movie** (Cont.)		Jeff Altman	**Movie:** Gardens of Stone		
TMC	**Movie:** Love at Large (5:00)		**Movie:** A World Apart				**Movie:** Side Out				**Movie:** Cadillac Man	